

Harold N. Moldenke

## xVERBENA HYBRIDA Voss

The genetic form "Chlorina" or "Bleached Dwarf" has its later leaves practically white, and it does not flower; "Strap" is a variable form sometimes with very narrow ribbon-like leaves, sometimes with almost normal ones, but the first pair is always narrow and entire, not broad and serrate, the more extreme forms fail to flower or else flower only during the second season after planting; "Nana" is a very small plant, to 6 inches tall, the leaves curled downward and sometimes wrinkled and mottled; and "Small" is up to about 12 inches tall and normal in leaf-shape and color, but is late-flowering. Dr. Chandler's Red Verbena Plant and Rose Verbena Plant are tetraploids,  $2n = 20$ , while her Rose Red, Purple, and Magenta Verbena Plants are triploids,  $2n = 15$ .

Salmon (1900) states that the fungus Microsphaera ferruginea Erikss. infests this plant, while in Biol. Abstr. 28: 3507 (1954) it is given as the host for a species of Erysiphe. Westcott (1950) reports that it is attacked by Flower Blight (Botrytis cinerea) in Massachusetts, by Root Knot Nematode (Heterodera marioni) in Maryland, by Stem Charcoal Rot (Macrophomina phaseoli) in Oklahoma, by three kinds of Root Rot -- Phymatotrichum omnivorum in Texas, Rhizoctonia solani in New York, and Thielaviopsis basicola in Pennsylvania, -- and by Powdery Mildew (Erysiphe cichoriacearum) everywhere. In her 1956 work she says that it is attacked by the Yellow Woollybear (Diacrisia virginica), Morningglory Leafcutter (Loxostege oblitalis), Verbena Leafminer (Agromyza artemisiae), Oblique-banded Leafroller (Archips rosaceana), Cyclamen Mite (Steneotarsonemus pallidus), Broad Mite (Hemitarsonemus latus), Two-spotted Mite (Tetranychus telarius), Fern Nematode (Aphelenchoides olesistus), Greenhouse Orthezia (Orthezia insignis), Flower Thrips (Frankliniella tritici), Greenhouse Thrips (Heliothrips haemorrhoidalis), Greenhouse Whitefly (Trialeurodes vaporariorum), Geranium Aphid (Macrosiphon pelargonii), Green Peach Aphid (Myzus persicae), Melon Aphid (Aphis gossypii), Verbena Bud-moth (Endothenia herbesana), Tarnished Plant-bug (Lygus lineolaris), Foxglove Aphid (Myzus solanii), Cottony Cushion Scale (Icerya purchasi), Gray Blister-beetle, and Snapdragon Lace-bug.

Lundell reports that it is "planted for ornament throughout the state" of Texas. The Keeling 64, cited below, is labeled as having come from "sandy loam soil on campus", so may have been in cultivation. The Collector undesignated 59, also cited below, from Mexico, the Carr s.n. [Clinton] from Massachusetts, the Liu

s.n. [Peking Union Medical College] from China, and the L. H. Bailey 7155 and 7156 from Mississippi do not have any indication on their labels that they were taken from cultivated material, but I am assuming that they were. Neither the Herb. Est. Cent. Agron. s.n. [Nov. 1909] nor the Fortune & Arias 7066, cited below, from Cuba bear any indication on their labels that they came from cultivated material, but Dr. Acuffa assures me that they did. The Herb. Jard. Bot. Tananarive 1322, cited below, from Madagascar is inscribed "subspontaneous". The G. B. Grant 2503a, cited below, is a mixture with V. canadensis (L.) Britton. Perry says "Probably cultivated — cf. V. peruviana (L.) Britt." for the Kerber 470 collection cited hereinafter, but there is no indication on the label that it came from cultivated material. Similarly, there is no evidence that the G. W. Barclay 528 cited below was cultivated — its label reads "herbaceous creeper, flowers rose coloured, soil - sandy loam - found in open habitations in the woods of Machala, Colombia, Oct. 1836."

Norton found xV. hybrida growing in low sandy bottomlands and open woods, while Radford found it in waste places in South Carolina. Stellfeld (1951) cites Stellfeld s.n. [Ilha do Mel, 5-11-94; Herb. Mus. Paran. 2075]. Schaffner (1933 & 1934) cites L. E. Hicks s.n. as escaped in Astabula County, Ohio.

Herbarium material of xV. hybrida is often found in herbaria under the name V. incisa Hook. On the other hand, the Dole 343, distributed as xV. hybrida, is actually Gaillardia pulchella var. picta A. Gray in the Carduaceae.

Standley (1938) applied the name V. teucroides Gill. & Hook. to the commonly cultivated garden verbenas of Central America which are actually xV. hybrida. He says "Verbena. Cultivated commonly in gardens as an ornamental plant. Native of southern South America. The common garden verbena, with flowers ranging from white to pink, red, or purple, is a favorite garden flower of Central America, especially in the temperate regions. The proper specific name of the garden plants, which may be in part of hybrid origin, is somewhat uncertain."

In all, 259 herbarium specimens and 33 mounted photographs and illustrations have been examined by me.

Citations: PENNSYLVANIA: Beaver Co.: Shafer s.n. [Beaver Falls, Sept. 6, 1900] (Up). SOUTH CAROLINA: Darlington Co.: J. B. S. Norton s.n. [Apr. 8, 1921] (Hi--59462). Kershaw Co.: A. E. Radford 20772 (Hi--92953). FLORIDA: Brevard Co.: J. K. Small 8745 (N, W--1738341). IOWA: Boone Co.: Pammel & Pammel s.n. [Ogden, Sept. 20, 1924] (Io--116119). OKLAHOMA: Payne Co.: Keeling 64 (St--17567). TEXAS: Val Verde Co.: Parks & Cory 9003 (Tr), 9004 (Tr). CALIFORNIA: Ventura Co.: H. M. Pollard s.n. [San Antonio Creek, June 25, 1948] (Gg--343936). MEXICO: Nuevo León: Roybal 28

(W—1924914). Vera Cruz: Kerber 470 (W—1323143). PANAMA: Panamá: Paul 39 (W—1586935). CUBA: Havana: Van Hermann 867, in part (W—1145108). COLOMBIA: Antioquia: Toro Toro 935 (Fn—1663, N). ECUADOR: El Oro: G. W. Barclay 528 (Bm). BRAZIL: Federal District: Fração s.n. [Herb. Jard. Bot. Rio Jan. 7402] (N). Minas Gerais: Sampaio 21 (Ja—46750). Rio de Janeiro: Rocha e Silva 54 (Ja). São Paulo: Santoro s.n. [Campo Experimental; Herb. Inst. Agron. S. Paulo 7613] (Be—35758). SWEDEN: Nilsson s.n. [Sept. 1907] (Go); Wide s.n. [Malmt, Okt. 1897] (Go). CONGO LEOPOLDVILLE: Bredo 1153 (Br). TANGANYIKA: A. Peter 37891 [V.168] (B). MADAGASCAR: Baron 3619 (K, P); Herb. Jard. Bot. Tananarive 1322 (P). CULTIVATED: Alabama: L. H. Bailey 7048 (Ba). Amoy Island: H. H. Chung 1609 (Ca—225555). Argentina: Burkart 18105 (N); Herb. Univ. Mass. s.n. [Aug. 1864] (Ms); T. Meyer 12620 (N); Moldenke & Moldenke 19723 (N). Arizona: A. R. Moldenke 620 (S). Austria: Khek s.n. [Aug. '72] (V—11289). Barbados: Herb. Bot. Stat. Barbados 322 (N). Bermuda: Brown & Britton 1728 (N); Brown, Britton, & Bisset 2209 (N). Brazil: Etzel s.n. [Prefeitura Municipal, July 26, 1937] (N, Sp—38719); W. Hoehne 2557 (Bh, N); Moldenke & Moldenke 19990 (N); Stellfeld 1095 [Herb. Mus. Paran. 1095] (N). California: Bailey & Bailey 7960 (Ba), 9743 (Ba); E. P. Bradbury s.n. [Letts Hollywood, 1916] (Ba); W. R. Dudley s.n. [July 1893] (Du—362568); Eastwood s.n. [Inverness, May 13, 1934] (Gg—214240); H. M. Hall 3819 (Ca—59951); P. L. Hall 63 (Ba); Lenington s.n. [Pomona, Dec. 15, 1927] (Hp), s.n. [Pomona, Feb. 16, 1928] (Hp); Woodcock 979 (Ba). Canada: Desrochers 416-52 (Mg), 417-52 (Mg), 418-52 (Mg), 419-52 (Mg), 591-52 (Mg), 592-52 (Mg), 625-52 (Mg), 736-52 (Mg); Herb. Marie-Victorin s.n. (Vi). China: Chiao 259 [Herb. Univ. Nanking 12028] (Bz—23750, Ca—294867); Herb. Inst. Bot. Acad. Sin. 459 [275] (S); Lauphit 113 (Ur); Liu s.n. [Peking Union Medical College] (Ba). Colombia: Daniel 2206 (W—1778707); H. García y Barriga 11619 (N, W—1854145); Toro Toro 1220 (Fn—1657). Congo Leopoldville: RR. PP. Salésiens 291 (Br). Connecticut: Enequist 152 (N). Cuba: Fortún & Arias 7066 (Es); Herb. Est. Cent. Agron. s.n. [Nov. 1909] (Es); Ponce & Ramos 415 (Rg—317); Van Hermann 867, in part (N), 2688 (N, Po—63879). Delaware: Herb. Sullivant s.n. (Pa). El Salvador: Calderón 646 (W—1151628). Finland: Lindström 5 [1903] (Ew); Välikä s.n. [5.8. 1936] (Vi). Florida: Bailey & Bailey 6468 (Ba), 7022 (Ba), s.n. [Tallahassee, Apr. 3] (Ba, Ba); G. B. Grant 2503a [10678] (Po); J. S. Watkins s.n. [Gainesville, 3-20-31] (Fl—21113). France: Bouchon s.n. [Duffour 5029] (Um—29); Herb. W. H. Harvey s.n. [h. R. P. 1837] (Du—166485); Herb. Saldanha 2769 (Ja—46559); E. H.

L. Krause 29280 (B). Georgia: Cuthbert s.n. [Augusta, June 1, 1900] (Fl--21114). Germany: Bothe s.n. [Juni 1903] (B, B); Golenz s.n. [Schwiebus, August 1872; Herb. Prager 18627] (Gg--31450), s.n. [Schwiebus, 1872] (B), s.n. [Schwiebus, Sept. '73] (B), s.n. [August] (Gg--31449), s.n. [Schwiebus] (La); Lohmeyer s.n. [*chamaedrifolia* var. *hybrida*] (B, B, Du), s.n. [*teneroides*] (Du); C. J. Mayer s.n. [München, Septbr. 1895] (Mi); Schulz & Schulz s.n. [Berlin, 13.9.1896] (B), s.n. [Berlin, 1.6.1897] (B). Hawaiian Islands: Neal s.n. [June 25, 1941] (Bi). Illinois: Herb. Div. Floric. Univ. Ill. 176 (Ur), 273 (Ur), 886 (Ur); Herb. Univ. Ill. s.n. [Oct. 1, 1870] (Ur); Stenstrom 4 (Ur, Ur). India: Herb. Hort. Bot. Calcutt. s.n. (Bz--23717, Bz--23787). Iowa: Harmon s.n. [Marshalltown, Oct. 7, 1929] (Io--133933). Italy: Gresino s.n. [29.V.1938] (N); Herb. Harvey s.n. [hort. Bellorae, jun. 1842] (Du--166458). Japan: Collector undesignated s.n. [17 Juni 1908] (W--1133064). Java: C. A. Backer 12523 (Bz--23786); Herb. Hort. Bot. Bogor. XVK.A.XLIV.5 (Bz--26425), XVK.A.XLIV.9 (Bz--26426), XVK.A.XLV.3 (Bz--23755), XVK.A.XLV.12 (Bz--23764), XVK.A.XLV.13 (Bz--26440, Bz), XVK.A.XLV.20 (Bz--26445), XVK.A.XLVI.19 (Bz--26470). Kansas: E. A. Popenoe s.n. [College Greenhouse, Apr. 5, 1901] (W--1114010). Louisiana: Langlois s.n. [August 1878] (I). Madeira: E. Wall 5 [27/329] (Ew). Massachusetts: L. H. Bailey s.n. [Cambridge, June 21-23, 1919] (Ba), s.n. [Cambridge, August 6-12, 1929] (Ba, Ba); Carr s.n. [Clinton] (Se--14942); A. Clark s.n. [Amherst, July 1876] (Ms); H. L. Jones s.n. [Oct. 1893] (Ob--50810); Kidder s.n. [7 Aug. 1929] (Oa--10740); Torrey & Cross s.n. [Oct. 3, 1936] (Ms, Ms). Mexico: Collector undesignated 1 (I), 59 (I); M. B. Foster s.n. [Veracruz] (Ba); Halbinger & Reko 312 (N); Moldenke & Moldenke 19824 (N). Mississippi: L. H. Bailey 7155 (Ba), 7156 (Ba). Netherlands: C. A. Backer s.n. [Apeldoorn, 1915] (Bz--23788). New Jersey: Disbrow s.n. [Newark] (Nm); H. N. Moldenke 3030 (N), 7858 (N). New Mexico: Arsène & Benedict 21573 (W--1696551). New York: L. H. Bailey s.n. [Sept. 1, 1915] (Ba), s.n. [July 4, 1919; Vilmorin-Andrieux 80070] (Ba, Ba), s.n. [Oct. 17, 1921] (Ba), s.n. [Sept. 4, 1922] (Ba), s.n. [Aug. 13, 1924; seed sown May 6; Ferry] (Ba), s.n. [Sept. 1, 1924] (Ba, Ba--photo, N--photo, Z--photo), s.n. [Sept. 12, 1924] (Ba), s.n. [Sept. 20, 1925; Haage & Schmidt 5203; seeds sown April 6] (Ba), s.n. [July 22, 1926; seed sown May 6; Steckler Seed Co.] (Ba), s.n. [July 22, 1926; seed sown May 6; Steckler 602] (Ba), s.n. [July 25, 1926; seed sown April 14] (Ba), s.n. [Sept. 8, 1926; Steckler E] (Ba), s.n. [Sept. 8, 1926; seed sown May 5; Steckler D] (Ba), s.n. [Aug. 31, 1927; Carter 5805; seed sown April 14] (Ba), s.n. [Nov. 1, 1927; Cartar 5807; seed sown May 17] (Ba), s.

n. [July 29, 1928] (Ba, Ba--photo, Ba--photo, N--photo, N--photo, Z--photo, Z--photo), s.n. [Aug. 5, 1928] (Ba), s.n. [Sept. 25, 1928] (Ba); Burdick s.n. [July 2, 1923] (Ba); Collector undesignated s.n. [Tarrytown, Aug. 1, '96] (N); Herb. N. Y. Bot. Gard. s.n. [August 1, 1896] (N); Jacobi s.n. [N. Y. Bot. Gard. Cult. Plants 26575; 6/15/10] (N), s.n. [N. Y. Bot. Gard. Cult. Plants 26575; 7/8/10] (N), s.n. [N. Y. Bot. Gard. Cult. Plants 26575; 8/1/10; seed from Leiden] (N); H. N. Moldenke 8242 (N), 8243 (N), 8244 (N), 11894 (St), 11895 (St), 11897 (St); Moldenke & Moldenke 11887 (N), 11888 (N), 11893 (N), 11894 (N), 11895 (N), 11896 (N), 11897 (N), 11898 (N), 11899 (N), 11900 (N), 11901 (N); N. Y. Bot. Cult. Plants 11100 (N--photo); W. H. Rhoades s.n. [near Rochester, July 1938] (Hs); R. C. Schneider s.n. [N. Y. Bot. Gard. Cult. Plants 26575] (N); A. Wood s.n. (Pa). North Carolina: L. H. Bailey s.n. [Washington, May 17, 1930] (Ba); P. O. Schallert 17805 (Ok, Ok), s.n. [8/10/32] (Or--28433); M. W. Ward s.n. [Oct. 21, 1938] (Hi--5083); Ziegler s.n. [Oct. 16, 1938] (Hi--4069), s.n. [Oct. 18, 1938] (Hi--4064). North Dakota: St. Lawrence 494 (I). Ohio: E. Wilkinson s.n. [25 Sept. 1887] (Ob--80593). Oklahoma: O. H. Calvert 220 (St--24366); Murphy 99 (Ob--35109). Oregon: G. M. Powell s.n. [Aug. 8, 1933] (Or--42525). Panama: Maurice 896 (W--1791136). Pennsylvania: Burpee & Co. s.n. [Doylestown, Fordhook Famous] (Ba), s.n. [Doylestown, Scarlet Defiance] (Ba). Philippine Islands: M. S. Clemens 18431 (Ca--368058). Pitcairn Island: Fosberg & Christian 11199 (Bi). Puerto Rico: Britton & Boynton 8254 (N); Moldenke & Moldenke 19537 (N). St. Thomas: Britton & Britton 237 (N). St. Vincent: Morton 5457 (W--1884366). Sweden: Bagge s.n. [28/8/1910] (Go); Blom s.n. [Aug. 1931] (Go); Herb. Beurling s.n. [Holmiae, 1840] (S); Lindström 5 [1883] (Ew); Reuterman s.n. [31/7/1886] (Go), s.n. [13/9/1886] (Go); Trolander 5 (Ew); E. Wall 5 [18/844] (Ew, Ew), 5 [1/941] (Ew, Ew), 5 [15/941] (Ew). Switzerland: Herb. Hort. Bot. Basil. s.n. [Aug. 1841] (M), s.n. [Aug. 1839] (M), s.n. [1841] (M), s.n. (Mi). Texas: L. H. Bailey 7398 (Ba); C. L. Lundell 10936 (N, Rf), 10939 (N, Rf), 10940 (Sm); Lundell & Lundell 9763 (Ld, N); Reeves 190 (N). Uruguay: Herb. Herter 61714 (N); Rosengurt B. 3428 (N). Venezuela: Bailey & Bailey 884 (Ba), 1865 (Ba); Elias 158 (Oa--13986). Vermont: Dole 346 (Vt); Loveland s.n. [Norwich, 3-22-92] (Vt). Locality of collection undetermined: Collector undesignated s.n. [1877] (Vt); Herb. Mazziari 1685 (S), 1687 (S), s.n. (S); Herb. Univ. Mass. s.n. [Oct. 1864] (Ms). MOUNTED ILLUSTRATIONS: Plate from garden catalogue (Z); Florist. & Hort. Journ. 3, no. 8. 1854 (N); Hort. Franç., sér. 2, pl. 18. 1865 (N); P. Henderson, Types of New Mammoth Verbena, fig. 1--15. 1888 (N);

Vick's Monthly, Verbenas (N); Verbenas 1. Shylock, 2. British Queen, 3. Exquisite (N); A. Blanc, Philad., Mammoth Verbenas, copyright 1888 (N); embossed color plate (N); Verbena Extra Choice Mixed 20 cts. (N); 25645. Verbena hybrida (N); Verbena. Packet, 20 Cents (N); No. 88. Verbena. \$1.00 (N); 25660. Verbena hybrida, var. striata (N); 25661. Verbena hybrida, var. striata (N); 25662. Verbena hybrida, var. striata (N); Verbena. Garden Hybrids (N); Hybrid Garden Verbenas (N); Tom Thumb Verbena (N); 25665. Verbena hybrida, var. auriculaeflora (N); Verbena (N); Verbenas. Best of our General Collection (N); P. Henderson, New Verbena "Union" (N); No. 3097. New Verbenas. \$1.25 (N); McAllister, Dwarf White Compact Verbena (N); McAllister, New Mammoth Verbena (N); A. Blanc, Types of Mammoth Verbenas (N); L. H. Bailey, Ithaca, Sept. 1, 1924 (N); L. H. Bailey, Ithaca, July 29, 1928 (N, N); New York Bot. Gard. Cult. Plants 11100 (N); No. 956, Verbena Hybrida Grandiflora Brightness (N); 4521, Henderson's American Beauty Collection of New Verbenas (N, N); 2802. Verbena All-color Giants (N, N, N); Hardy Verbena Brilliant (N); Verbena (N); 12. Verveine hybride à fleur d'auricule (N); 8015 Verbena (N); Verbenas Sutton's Giant Pink and Sutton's Giant Royal Blue (N); 2761 New Dwarf Erect Verbena Blue Sentinel (N); 8015 Verbena, New Giant Flowered Mixture (N); Schlings Nove Hy Collection of Improved Mammoth (Gigantea) Verbenas (N); 79906-79907 Verveine hybride variée extra (N); Vaughan's Seed Store, Vaughan's Best Verbenas (N); Verbena Spectrum Red (N); 2761. Blue Sentinel Verbena (N); Verbena (Hybrid) "Beauty of Oxford" (N); New Giant-Flowered Verbenas (N); New Verbena "Flamingo" (N); Attraction - A New Hardy Verbena (N); New York Bot. Gard. color slide 6073 (Z).

xVERBENA ILLICITA Moldenke, *Revist. Sudam. Bot.* 4: 18--19. 1937.

Synonymy: Verbena urticaefolio-stricta Engelm., *Am. Journ. Sci.* 46: 101. 1844. Verbena stricto-urticaefolia Engelm., *Am. Journ. Sci.* 46: 101. 1844. Verbena stricta x urticaefolia Mackenzie ex Moldenke, *Revist. Sudam. Bot.* 4: 19, in syn. 1937 [not V. stricta x urticaefolia Eggert, 1958, nor Letterman, 1958, nor Pammel, 1958]. Verbena stricta x urticaefolia Pond ex Moldenke, *Revist. Sudam. Bot.* 4: 19, in syn. 1937. Verbena stricta x urticifolia Britton ex Moldenke, *Revist. Sudam. Bot.* 4: 19, in syn. 1937 [not V. stricta x urticifolia Glatfelter, 1958, nor Patterson, 1958]. Verbena stricta x urticifolia Eggert ex Moldenke, *Revist. Sudam. Bot.* 4: 19, in syn. 1937. Verbena stricta x urticifolia Stevens (in part) ex Moldenke, *Revist. Sudam. Bot.* 4: 19, in syn. 1937. Verbena urticifolia x stricta Eggert ex Moldenke, *Revist. Sudam. Bot.* 4: 19, in syn. 1937. Verbena stricta x urticifolia Gates, *Fl. Kans.* 191. 1940. Verbena hastata x urticifolia Gates, *Fl. Kans.* 190. 1940 [not V. hastata x urticifolia Blanchard, 1937, nor Dermen, 1936, nor Eggert, 1937, nor Farwell, 1947, nor Perry, 1941, nor Pringle, 1947]. Verbena stricta x urticifolia Schneck ex Moldenke, *Suppl. List Invalid Names* 10, in

syn. 1941. Verbena stricta x urticaefolia Gates ex Moldenke, Alph. List Invalid Names Suppl. 1: 27, in syn. 1947. Verbena stricta x urticifolia Bush ex Moldenke, Alph. List Invalid Names Suppl. 1: 27, in syn. 1947. Verbena urticifolia x stricta Gates (in part) ex Moldenke, Alph. List Invalid Names Suppl. 1: 27, in syn. 1947. Verbena urticifolia x stricta Norton ex Moldenke, Am. Midl. Nat. 59: 352, in syn. 1958. Verbena stricto-urticifolia Patterson ex Moldenke, Résumé 375, in syn. 1959. Verbena stricta urticifolia Gates ex Moldenke, Résumé 375, in syn. 1959.

Bibliography: Engelm., Am. Journ. Sci. 46: 101. 1844; Moldenke, Revist. Sudam. Bot. 4: 18--19. 1937; Gates, Fl. Kans. 191. 1940; Moldenke, Prelim. Alph. List Invalid Names 48 & 49. 1940; Moldenke, Suppl. List Invalid Names 10. 1941; Moldenke, Alph. List Invalid Names 50 & 51. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 6--11 & 101. 1942; Deam, Kriebel, Yuncker, & Friesner, Proc. Ind. Acad. Sci. 54: 95. 1945; Moldenke, Bot. Gaz. 106: 160. 1945; G. N. Jones, Fl. Ill. [Am. Midl. Nat. Monog. 2:] 216. 1945; Moldenke, Castanea 10: 38. 1945; Moldenke, Alph. List Cit. 1: 81, 108, 110, 159, 164, 181, 193, & 279. 1946; Moldenke, Alph. List Invalid Names Suppl. 1: 27. 1947; Moldenke, Phytologia 2: 326. 1947; Hill & Salisb., Ind. Kew. Suppl. 10: 242. 1947; Moldenke, Alph. List Cit. 2: 395, 396, 399, 470, 516, & 524 (1948), 3: 699, 721, 773, 774, 790, 791, 800, 822, 826, & 904 (1949), and 4: 1217, 1255, 1261, & 1298. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 12, 13, 15--18, 21, & 198. 1949; Moldenke, Phytologia 3: 72 (1949) and 4: 67. 1952; Moldenke in Gleason, New Britton & Br. Illustr. Fl., print. 1, 3: 126, 129, & 130. 1952; Moldenke, Phytologia 4: 185. 1953; Moldenke in Gleason, New Britton & Br. Illustr. Fl., print. 2, 3: 126, 129, & 130. 1958; Moldenke, Am. Midl. Nat. 59: 347 & 362--353. 1958; Moldenke, Résumé 16, 17, 19, 21, 22, 26, 365, 375, 377, & 472. 1959; Moldenke, Résumé Suppl. 2: 2 (1960) and 3: 6 & 41. 1962; J. D. Poindexter, Trans. Kans. Acad. Sci. 65: 410, 415, 417, & 418. 1962; Moldenke, Résumé Suppl. 6: 1 & 2 (1963) and 7: 2 & 10. 1963; Gleason & Cronquist, Man. Vasc. Pl. 580. 1963.

Illustrations: Moldenke in Gleason, New Britton & Br. Illustr. Fl., print. 1, 3: 130 (1952) and print. 2, 3: 130. 1958.

This is a natural hybrid between V. stricta Vent. and V. urticifolia L., occurring commonly where the ranges of the two species overlap in the central United States. It is based on the V. urticaefolio-stricta of Engelmann, of which the type was collected by George Engelmann at Saint Louis, Missouri, in September of 1841. It resembles V. urticifolia in habit, but has the spikes denser, not greatly elongated after anthesis, very sparsely and irregularly fruited, the mature calyxes mostly contiguous, the flowers larger, the leaves broader, and the stems, branches, inflorescences, and leaves densely and coarsely long-pubescent. The corollas are described as blue.

Poindexter (1962) compares this hybrid with its two parents as follows: Leaf index: V. urticifolia = 1.9--2.6 (average 2.2), xV.

illicita = 2.1--2.7 (average 2.2), V. stricta = 1.3--2.1 (average 1.8); leaf-shape: V. urticifolia = broadly lanceolate to ovate, xV. illicita = ovate to broadly lanceolate, V. stricta = elliptic to ovate; leaf-base: V. urticifolia = rounded, decurrent into the petiole, xV. illicita = sharply attenuate to sessile, V. stricta = broadly attenuate to sessile; leaf-apex: V. urticifolia = gradually acuminate, xV. illicita = gradually to abruptly acuminate, V. stricta = acute to rounded; stem pubescence: V. urticifolia = hirtellous, xV. illicita = hirtellous to hirsute, V. stricta = hirsute; nutlet length: V. urticifolia = 1.6--1.9 (average 1.7), xV. illicita = 1.6--2.4 (average 2.2), V. stricta = 2.2--2.9 (average 2.6); markings on back of nutlets: V. urticifolia = moderately ribbed, xV. illicita = moderately to densely ribbed, V. stricta = deeply ribbed; pollen fertility: V. urticifolia = 83--99 percent (average 94.2 percent), xV. illicita = 19--64 percent (average 34.7 percent), V. stricta = 50--100 percent (average 90 percent); corolla-tube length: V. urticifolia = 1.5--2.5 (average 2.1), xV. illicita = 3.4--4.5 (average 4), V. stricta = 4.5--5.5 (average 4.9); calyx length: V. urticifolia = 1.7--2.3 (average 2), xV. illicita = 2--4.5 (average 3.2), V. stricta = 3.8--5.1 (average 4.3); petiole-lateral vein measurement: V. urticifolia = 14--25 (average 19.6), xV. illicita = 3--15 (average 9.7), V. stricta = 3--6 (average 3.8).

Storm reports the hybrid as "not numerous", growing among V. stricta Vent., V. hastata L., and V. urticifolia L. Pammel refers to it as "a common weed" (but probably is referring here to the true V. urticifolia with which he has mixed it on herbarium sheets) in sandy clay soil, associated with V. stricta, V. hastata, Anthemis cotula L., Persicaria mitis Gilib., Ambrosia elatior L., and Coreopsis palmata Nutt. Other collectors have found it in wet or sandy soil, pastures, meadows, waste places, and river-bottoms, at the edge of swamps, and along dry roadsides and streets, flowering from May to September, and in fruit from June to September. Ahles found it in a pasture with V. stricta, V. hastata, and V. urticifolia, while Ahles & Gilpin collected it in waste ground of low areas and in thinly wooded pastures with both parents present. Demaree found it at an elevation of 450 feet.

Herbarium material of this hybrid has been misidentified and distributed as V. bracteosa x stricta Palmer, V. hastata L., V. stricta Vent., V. stricto-paniculata Engelm., V. urticifolia L., and V. urticifolia x hastata Gates. On the other hand, the G. W. Stevens 2308, distributed as this hybrid, is V. hastata L., and Wills s.n. [July 27, 1959] is V. urticifolia L. The hybrid has been called "blue vervain".

Engelmann's V. stricto-urticaefolia was based on a collection made by him at Saint Louis, Missouri, in July, 1842, and one by



Carl Andreas Geyer at Beardstown, Cass County, Illinois, in July, 1842. The type of V. hastata x urticifolia Gates was collected by John Bitting Smith Norton (no. 792, in part) in Riley County, Kansas, and is deposited in the herbarium of the Kansas State College at Manhattan (although in his original publication Gates says for it "scattered, Meade, Crawford, and Bourbon Counties"); that of V. urticifolia x stricta Norton was gathered by the same collector in Pottawatomie County, Kansas, on July 17, 1896, deposited in the same herbarium; that of V. stricta urticifolia Gates is a collection by George Lemon Clothier and Harry Nichols Whitford from Labette County, Kansas, on August 18, 1897, also in the same herbarium. V. stricta x urticifolia Eggert is based on a collection by Heinrich Karl Daniel Eggert from somewhere in Illinois, August 14, 1875, deposited in the herbarium of the New York State Museum at Albany, while his V. urticifolia x stricta was collected by him on August 3, 1875, at Cairo, Alexander County, Illinois, deposited at Iowa State College. The type of V. stricta x urticaefolia Pond was collected by Raymond Haines Pond (no. 1130) in Pottawatomie County, Kansas, deposited in the herbarium of the University of Michigan, that of V. stricto-urticifolia Patterson was collected by Henry Norton Patterson in July 1872 in Henderson County, Illinois, deposited at the New York State Museum, and that of V. stricta x urticifolia Bush was gathered by Benjamin Franklin Bush (no. 12927) in Morgan County, Missouri, and is deposited in the herbarium of the University of Oklahoma at Norman. It should be noted here that V. stricta x urticifolia Gates is in part typical V. urticifolia L.

The V. stricta x urticaefolia Eggert referred to in the synonymy above is a synonym of xV. rydbergii Moldenke, as are also the V. stricta x urticifolia of Glatfelter and of Patterson. The V. stricta x urticaefolia of Letterman and of Pammel are xV. moechina, while the V. hastata x urticifolia of Blanchard, of Fermen, of Eggert, of Farwell, of Perry, and of Pringle are all xV. engelmannii. The V. stricta x urticifolia Stevens referred to above "in part" as xV. illicita, is also in part xV. perriana Moldenke and xV. rydbergii, while the V. urticifolia x stricta Gates is in part also V. urticifolia L.

Pammel says of McKibben s.n. [Steam Boat Rock, Sept. 1912] "Is this a hybrid? Found in sandy soil. Nearly all the plants of this type." The M. K. Clemens s.n. [Oshkosh, July 30, 1909], cited below, was annotated by Perry in 1932 as "cf. Verbena hastata L."

In all, 63 herbarium specimens, including the types of all the names involved, have been examined by me.

Citations: ILLINOIS: Alexander Co.: Eggert s.n. [Cairo, Aug. 3, 1875] (Ca--181599, Cm, Io--79870, N, W--754561), s.n. [3.8.75] (Go). Cass Co.: Geyer s.n. [Beardstown, July 1842] (Br, Dt). Ful-

ton Co.: Winterringer 8834 (Il--38702). Hancock Co.: L. H. Pammel s.n. [Hamilton, Sept. 8, 1918] (Io--94060). Henderson Co.: H. N. Patterson s.n. [July 1872] (Al). Kankakee Co.: C. C. Crampton 369 (W--750627). Mason Co.: Ahles 2985 (Ur). Menard Co.: E. Hall s.n. [Athens, 1861] (Pa). Piatt Co.: Ahles 6578 (Ur); G. N. Jones 20849 (Ur). Randolph Co.: Ahles & Gilpin 8143 (Ur). Sangamon Co.: Ahles 4589 (Ur). Vermilion Co.: Ahles & Gilpin 8091 (Ur); Storm s.n. [July 28, 1949] (Ur). Wabash Co.: Schneck s.n. [streets of Mt. Carmel, June 25, 1879] (Ur). Whiteside Co.: Ahles 4202 (Ur). County undetermined: Eggert s.n. [14 Aug. 1875] (I). INDIANA: Tippecanoe Co.: Dorner 120 (Pu), 313 (Pu). IOWA: Des Moines Co.: L. H. Pammel 960, in part (Io--119554). Hardin Co.: McKibben s.n. [Steam Boat Rock, Sept. 1912] (Io--123449). WISCONSIN: Winnebago Co.: M. K. Clemens s.n. [Oshkosh, July 30, 1909] (Po--69913). KANSAS: Doniphan Co.: Agrelius, Hall, Lovejoy, & Maroney s.n. [8-18-13] (Lw). Labette Co.: Clothier & Whitford s.n. [Aug. 18, 1897] (Ka). Pottawatomie Co.: J. B. S. Norton s.n. [7-17-96] (Ka); R. H. Pond 1130 (Ka, Ka, Mi, N, W--353933). Riley Co.: J. B. S. Norton 792, in part (Ka). Wabaunsee Co.: Norton & Clothier s.n. [7-3-1895] (Ka). Wyandotte Co.: K. K. Mackenzie s.n. [June 27, 1895] (N). MISSOURI: Cooper Co.: B. F. Bush 12548 (Bt--15403). Franklin Co.: Eggert s.n. [Pacific, 4 July 1896] (Cm, N). Jasper Co.: E. J. Palmer 4025 (W--753613). Morgan Co.: B. F. Bush 12927 (Ok--14686). Ralls Co.: J. Davis s.n. [July 17, 1913] (Se--14948). Saint Louis: Eggert 5319 (N), s.n. [St. Louis, 14 Aug. 1875] (Al, Cm, T1); Engelmann s.n. [St. Louis, Sept. 1841] (Pr--isotype, W--71970--isotype, W--71972--isotype, W--71995--isotype), s.n. [St. Louis, July 1842] (Pr, T), s.n. [St. Louis, Aug. 1848] (T), s.n. [St. Louis, Aug. 1859] (T, T), s.n. [St. Louis] (Br, Sg--16104). ARKANSAS: Baxter Co.: Demaree 20686 (N, Z). Benton Co.: Plank s.n. (N). NEBRASKA: Nemaha Co.: J. L. Sheldon s.n. [Peru, July 18, 1900] (We).

VERBENA INAMOENA Briq. in Chod. & Hassler, Bull. Herb. Boiss., sér. 2, 4: 1058. 1904.

Bibliography: Briq. in Chod. & Hassler, Bull. Herb. Boiss., sér. 2, 4: 1058. 1904; Briq. in Chod. & Hassler, Plant. Hassler. 10: 480. 1904; Prain, Ind. Kew. Suppl. 3: 187. 1908; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 41 & 101 (1942) and [ed. 2], 99 & 198. 1949; Moldenke, Phytologia 3: 305 (1950) and 3: 453 & 454. 1951; Moldenke, Résumé 118 & 472. 1959.

Tall herb, 0.8--1.5 m. tall; stems erect, conspicuously tetragonal, dark-green, shortly pilose-pubescent and rough throughout, ramose; branches ascending; principal internodes 3--5 cm. long; leaves sessile, decussate-opposite, reflexed, elongate, rather thick-textured, narrowly oblong-lanceolate, 8--9 cm. long,

1--1.4 cm. wide, acute or subacute at the apex and rather long-apiculate, the margins subparallel or slightly convex, irregularly and rather strongly serrate-crenate, auriculate at the base and clasping the stem so as to hide it completely, giving a perfoliate appearance, rugose, rough or scabridulous on both surfaces and also pilose-pubescent, dark-green, prominently reticulate-nervose, the teeth 1--2 mm. long and 2--5 mm. apart; peduncles elongate, naked, shortly pilose-pubescent, the hairs mixed with stipitate glands; spikes terminal, subsessile, very short, arranged in dense corymbs at the apex of the peduncle, 5--8 mm. long (excluding the corollas); bractlets shorter than the calyx or subequaling it, elliptic, 2.5--2.8 mm. long, subobtuse at the apex, shortly pubescent on the back, rather stiffly pilose-ciliate along the margins; calyx short-tubular, about 3 mm. long, glabrescent, rather shortly pilose-ciliate toward the apex and on the angles, the teeth short-acuminate from a broad base, less than 0.5 mm. long; corolla rose, medium-sized, its tube long-exserted, surpassing the calyx-teeth by about 5 mm., rather densely pilose-pubescent and interspersed with stipitate glands on the outer surface, the limb spreading, 4--5 mm. wide, the lobes obcordate, subglabrous on the inner surface, the largest about 2 mm. long and 2.5 mm. wide; stamens and pistil included.

The type of this little-known species was collected by Emil Hassler (no. 3164) on the campo near Tobaty, Paraguay, and is deposited in the Delessert Herbarium at the Conservatoire et Jardin Botaniques at Geneva. Briquet notes that "Cette curieuse espèce se place dans le voisinage du V. bonariensis, dont elle se distingue par ses feuilles étroites et très allongées, réfléchies, ses épis très courts groupés en une inflorescence corymbiforme dense, et ses bractées elliptiques, subobtusées au sommet (lancéolées-acuminées dans le V. bonariensis)."

Thus far the species is known only from the type specimen, not as yet seen by me.

VERBENA INCISA Hook. in Curtis, Bot. Mag. 65: pl. 3628. 1839 [not V. incisa Chod., 1904].

Synonymy: ?Verbena arranana J. Harrison, Floricult. Cab. 6: 47. 1838. ?Verbena tweediana var. arraniana Niven ex Maund & Henslow, Botanist 2: pl. 60, in textu. 1838. Verbena triumphans Marnock, Floricult. Mag. 5: 87--88, pl. 54, fig. 1. 1840. Verbena arraniana Hort. ex Steud., Nom. Bot., ed. 2, 749. 1841. Verbena arraniana Hort. ex Schau. in Mart., Fl. Bras. 9: 183, in syn. 1851. Verbena triumphans Hort. ex Stapf, Ind. Lond. 6: 431. 1931. Verbena tweediana arraniana Niven ex Stapf, Ind. Lond. 6: 431. 1931. Verbena fulgens Bonpl. ex Moldenke, Lilloa 6: 331, in syn. 1941. Verbena incisa Hort. ex Moldenke, Alph. List Invalid Names Suppl. 1: 25, in syn. 1947. Verbena tweediana var. arraniana Niven ex Moldenke, Alph. List Invalid Names Suppl. 1: 27, in syn. 1947. Verbena arraiana Hort. ex Moldenke in Chittenden, Roy. Hort. Soc.

Dict. Gard. 4: 2210, sphalm. 1951. Verbena briquetiana Osten ex Moldenke, Résumé 360, in syn. 1959. Verbena briquetiana f. campestris Osten ex Moldenke, Résumé 360, in syn. 1959. Verbena briquetiana f. silvatica Osten ex Moldenke, Résumé 360, in syn. 1959. Verbena chamaedryfolia  $\alpha$  melindres f. siccanea Osten ex Moldenke, Résumé 362, in syn. 1959. Verbena chamaedryfolia hybrida Osten ex Moldenke, Résumé 362, in syn. 1959. Verbena megapotamica var. truncatula Briq. ex Moldenke, Résumé 369, in syn. 1959. Verbena melindroides f. briquetiana Osten ex Moldenke, Résumé 369, in syn. 1959. Verbena melindroides f. silvatica Osten ex Moldenke, Résumé 370, in syn. 1959. Verbena megapotamica f. truncatula Briq. ex Moldenke, Résumé Suppl. 3: 40, in syn. 1962. Verbena tweediana var. grandiflora Martens ex Moldenke, Résumé Suppl. 3: 41, in syn. 1962.

Bibliography: J. Harrison, Floricult. Cab. 6: 47. 1838; Maund & Henslow, Botanist 2: pl. 60. 1838; Marnock, Floricult. Mag. 2: 184, pl. 24, fig. 1. 1838; Hook. in Curtis, Bot. Mag. 65: pl. 3628. 1839; G. Don in Loud., Hort. Brit. Suppl. 2: 680. 1839; Meisn., Pl. Vasc. Gen. 2: 198. 1839; Maund, Bot. Gard. 7: pl. 167. 1839--1851; Marnock, Floricult. Mag. 5: 87--88, pl. 54, fig. 1. 1840; Gard. Chron. 1841: 730. 1841; Steud., Nom. Bot., ed. 2, 749. 1841; Walp., Repert. Bot. Syst. 4: 32 & 33. 1845; Schau. in A. DC., Prodr. 11: 538. 1847; Schau. in Mart., Fl. Bras. 9: 183. 1851; Vilm., Fleurs Pleine Terre, ed. 1, 939. 1865; Rümpler in Vilm., Illustr. Blumeng., ed. 1, 1263. 1873; Regel, Gartenfl. 28: 372. 1879; Ball, Journ. Linn. Soc. Lond. Bot. 21: 231. 1884; Nicholson, Illustr. Dict. Gard. 4: 145. 1887; Morong, Britton, & Vail, Ann. N. Y. Acad. Sci. 7: 197. 1892; Briq. in Engl. & Prantl, Nat. Pflanzenfam. 4 (3a): 147. 1894; L. H. Bailey in A. Gray, Field Forest & Gard. Bot. 341. 1895; Hook. f. & Jacks., Ind. Kew. 2: 1178 & 1179. 1895; L. H. Bailey, Cycl. Amer. Hort., ed. 1, 6: 1912, pl. 2649. 1902; Chod., Bull. Herb. Boiss., sér. 2, 2: 818. 1902; Ed. Rodigas, Bull. Arboricult. Belg. 1902: 114. 1902; Chod., Plant. Hassler. 9: 197. 1902; Briq., Ann. Conserv. & Jard. Bot. Genève. 7-8: 288. 1904; Briq. in Chod. & Hassler, Bull. Herb. Boiss., sér. 2, 4: 1061--1062. 1904; Briq., Arkiv Bot. Stockh. 2 (10): 10--12. 1904; L. H. Bailey, Cycl. Amer. Hort., ed. 4, 6: 1912, pl. 2649. 1906; Gerth van Wijk, Dict. Plantnames 1397--1398. 1911; L. H. Bailey, Stand. Cycl. Hort. 6: 3445, pl. 3910. 1917; C. L. Pollard in Webster's New Internat. Dict. Eng. Lang. 2275. 1917; Herter, Florul. Urug. 105. 1930; Stapf, Ind. Lond. 6: 430 & 431. 1931; Parodi, Rev. Argent. Agron. 1: 202. 1934; L. H. & E. Z. Bailey, Hortus, new rev. ed., 632. 1935; Ciferri, Atti Inst. Bot. Univ. Pavia, ser. 4, 8: 280 & 284. 1936; Troncoso, Darwiniana 3: 53 & 55. 1937; Moldenke, Alph. List Common Names 25 & 32. 1939; Beale, Chron. Bot. 5: 517. 1939; Moldenke, Prelim. Alph. List Invalid Names 46. 1940; Beale, Journ. Genet. 40: 338, 340, 348, 354, & 355. 1940; Moldenke, Lilloa 6: 331--332 (1941) and 8: 430--431. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 31, 39, 41, 44, 74, & 101. 1942; Moldenke, Alph. List Invalid Names 48.

1942; Schnack, Anal. Inst. Fitotéc. Sta. Catalina 4: 21. 1942; Moldenke, Lilloa 10: 385. 1944; Moldenke, Phytologia 2: 79 & 115. 1945; Augusto, Fl. Rio Grande do Sul 209 & 232. 1946; Moldenke, Alph. List Cit. 1: 12, 22, 47, 212, & 262. 1946; Moldenke, Alph. List Invalid Names Suppl. 1: 22 & 25. 1947; Moldenke, Phytologia 2: 348 (1947) and 2: 425. 1948; Moldenke, Castanea 13: 117 & 119. 1948; Moldenke, Alph. List Cit. 2: 356, 360, 370, 374, 378, 413, 426, 441, 481, 533, 535, 575, 586, 598, & 599 (1948), 3: 703, 731, 732, 748, 749, 780, 859, 860, 875, 893, 909, 913, & 966 (1949), and 4: 1077, 1080, 1088, 1089, 1091, 1092, 1100, 1164, 1172, 1207, 1233, 1237, 1283, & 1293. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 94, 98--100, 106, 164, & 198. 1949; Moldenke, Phytologia 3: 135 (1949), 3: 288 (1950), and 3: 467. 1951; Steinfeld, Trib. Farmac. 19 (10): 166. 1951; Moldenke in Chittenden, Roy. Hort. Soc. Dict. Gard. 4: 2208, 2209, & 2211. 1951; Moldenke in Humbert, Fl. Madag. 174: 8. 1956; Moldenke, Inform. Mold. Set 51 Spec. 4. 1956; Angely, Fl. Paran. 7: 12. 1957; Moldenke, Am. Midl. Nat. 59: 350 & 362. 1958; Moldenke, Résumé 110, 115, 118, 119, 127, 223, 367, 369, 370, 377, 421, & 472. 1959; Angely, Fl. Paran. 16: 78 (1960) and 17: 46. 1961; Moldenke, Résumé Suppl. 3: 29 & 36--41 (1962), 4: 19 (1962), 5: 2 (1962), and 6: 10 & 11. 1963.

Illustrations: J. Harrison, Floricult. Cab. 6: 47 [in color]. 1838; Marnock, Floricult. Mag. 2: pl. 24, fig. 1 [in color]. 1838; Maund & Henslow, Botanist 2: pl. 60 [in color]. 1838; Hook. in Curtis, Bot. Mag. 65: pl. 3628 [in color]. 1839; Maund, Bot. Gard. 7: pl. 167 [in color]. 1839--1851; Marnock, Floricult. Mag. 5: pl. 54, fig. 1 [in color]. 1840; Nicholson, Illustr. Dict. Gard. 4: 145. 1887; L. H. Bailey, Cycl. Amer. Hort., ed. 1, 6: 1912, pl. 2649 (1902) and ed. 4, 6: 1912, pl. 2649. 1906; L. H. Bailey, Standl. Cycl. Hort. 6: 3445, pl. 3910. 1917.

Usually prostrate or creeping perennial herb, often spreading 1 or 2 m., sometimes subscandent, occasionally suffrutescent at the base and erect, 2.5 dm. to 2 m. tall, hirsute-pubescent and subcanescent throughout; stems usually procumbent or ascending, often twisting, usually about 6 dm. long; branches erect, whitish-hairy; leaves decussate-opposite, the lower ones petiolate, to 5 cm. long and 2.5 cm. wide at the base; petioles to 13 mm. long; leaf-blades thin-textured, oblong-ovate or triangular (the uppermost ones usually sessile, lanceolate or sublanceolate, and incised-pinnatifid), coarsely incised-serrate or pinnatifid-lobed, sharply acute at the apex, truncate or subcordate to auriculate at the base and there cuneately attenuate into the petiole, lineate-rugose above, appressed-strigillose or short-strigose with whitish hairs on both surfaces; spikes terminal, pedunculate, often ternate or subternate or in a corymbose panicle at the tips of the branches, densely many-flowered, at first fascicle-like, later elongating; bractlets ovate, 1/4 to 1/3 as long as the calyx, densely whitish-pubescent; flowers very showy; calyx tubular, about 10 mm. long, densely white-pubescent or -hirtellous on the outside, with scattered stipitate glands, the rim with short acuminate teeth; corolla hypocrateriform, usually

red, clear-red, dark-red, blood-red, bright-red, fire-red, or vivid-red to cinnabar-red, scarlet, brilliant scarlet, crimson, or bright crimson [other colors are reported, see below], its tube about 15 mm. long, glandular-pubescent, about 3 times as long as the calyx, the limb large, 7--9 mm. wide, the lobes obovate, deeply emarginate at the apex.

This rather perplexing but common species was based on two collections of James Tweedie (nos. 504 and 505) from "Alacriporium", Rio Grande do Sul, Brazil. The collector was cited as "Tweed" by Schauer in 1847, but this error was corrected by him in his 1851 work. The same author cites also Tweedie 460 "in campis siccis civitt. Platensium, ad S. Fé juxta flum. Parana."

It seems that the earliest name proposed for this species may possibly be Verbena arranana. The article in which this name is proposed is unsigned. I assume that Joseph Harrison, editor of the journal, was the author, but this is just an assumption based on a memorandum from Dr. H. W. Rickett wherein he cites Gard. Chron. 1841: 730 as authority. Steudel later "corrected" the spelling of the specific epithet to "arraniana" and credited it merely to horticultural origin. Other authors credit it to Niven. Maund & Henslow (1838) say "This variety, which Mr. Niven has termed Arraniana.....seeds sent by Mr. Tweedie, in 1834, to Mr. Niven, of the Glasnevin Botanic Garden, Dublin, by whom a single plant was raised." They call it "Mr. Tweedie's Vervain, Purplish-flowered variety", but V. incisa does NOT have purple flowers. This casts doubt on the disposition of V. arranana here -- it may belong in the synonymy of V. phlogiflora Cham. instead. The original article states that "Mr Tweedie sent seeds of this very fine species from Buenos Ayres to the Edinburgh and Dublin Botanic Gardens. The plant has bloomed at the latter place, from whence we secured our drawing. It is said to be more shrubby than the lovely V. tweediana, and where grown in contrast with the other species, will have a pretty effect. It has been named in compliment to the Earl of Arran."

Walpers (1845) classifies V. incisa in his Section Verbenaca, Subsection Inermes, Group Foliosae, Subgroup Macranthae, and Secondary Subgroup Aubletia, along with ten other species. Schauer (1847) placed it in Section Verbenaca, Subsection Nobiles, with 6 other species. He points out that it is closely related to V. phlogiflora Cham. "sed foliorum figurâ, corollae roseo-purpurascens tubo glanduloso-pubescente brevior calycem triente excedente, hirsutie subcanescente distincta." His description of the corollas as being rose-purple is of great interest. Most of the specimens cited below are described as having the corollas some shade of red, crimson, or scarlet, which seems to be typical. However, on Osten 2977 they are said to be "orange", on Bailey & Bailey 1234 "pink", on Herb. Osten 13572, Schreiter 5151, and Anisits 1978 "rose", on T. Meyer 277 "pale rose", on Lillo 6181 "purple", and on Herter 84432, Rojas 11785, and Ruiz Huidobro

3565 "violet". I am not convinced that these collections are true Verbena incisa — they may represent hybrids with other species — although Eyerdam & Beetle on the label of their no. 22954 say that the flowers of V. incisa show a "large range of color variation, pink, purple, scarlet, dark red, lavender, etc."

Briquet (1904) gives the following characters for V. incisa: "les inflorescences.....non pas en capitules corymbiformes...les bractées ovées, quatre fois plus courtes que le calice....les dents calicinales....courtes et simplement acuminées....la corolle deux à trois fois plus grande [than in V. tomophylla], à limbe étalé mesurant 1,5 cm. de diamètre, et glanduleuse extérieurement."

Osten, in a memorandum written in Montevideo and dated January, 1931, says "Zu Herb. C. Osten No. 8046. Verbena 'Briquetiana'. Cf. Briquet Verbenaceae Balansanae in Annuaire du Conserv. de Genève 1903/04 (VII-VIII) p. 288. 1904. Cf. Briquet in Arkiv f. Botanik II no. 10. 1904. Die Arbeiten von Chodat (Plantae Hasslerianae) und Briquet so weit sie die Sectio 'Nobiles' Schauer betreffen, sind voll von Irrthumern. Ich habe Briquet von 2 Jahren eine grossere Sammlung von Verbenen gesandt mit meinen Bemerkungen, habe aber nicht einmal Empfangsanzeige erhalten. An Hassler sandte ebenfalls, habe von ihm schriftlich die Nachricht, dass er mit meinen Ansichten übereinstimmt (Hassler ist augenblicklich in San Bernardino, ich habe ihn leider nicht sehen können).

"Briquet behauptet, dass V. chamaedryfolia in Paraguay nicht vorkomme. Das ist richtig soweit es sich um V. Melindres Gill. handelt. V. melindroides Cham. habe ich von Misiones und dürfte sie am Alto Paraná jedenfalls auch in Paraguay vorkommen. Wenn man aber die rotblühenden Formen der Nobiles zu einer sp. coll. (turma, grex) V. chamaedr. zusammenfasst, so gehört diese Form 8046 jedenfalls dazu. Ich habe hier in Uruguay, in Paraguay, in Argentinien gefunden dass die Blütenfarbe der einzelnen Arten sehr constant ist, dass dieselbe Art rot, violett, weiss blüht, ist absolut ausgeschlossen (cf. Chodat in Plant. Hassl.!). Soweit ich aus dem Beschreibungen Briquet's ersehen kann, hat er diese Form zu phlogiflora (megapotamica var. Tweediana) als forma truncatula gezogen. Sie hat nichts damit zu tun. V. phlogiflora ist hochwüchsiger, mit grösseren Blüten deren Farbe immer lila violett ist, deren Blütenstände sich nach dem Verblühen nicht verlängern sondern kopfförmig bleiben. Ich habe diese Form 8046 in meinem Herbar als 'Briquetiana' bezeichnet und halte sie für den Uebergang von V. incisa Hook. zu der V. scrobiculata Griseb. (Symbolae no. 1735). V. incisa Hook. aus der Araucariazone, s/Br. Uruguay [nur fluss littoral!]; V. scrobiculata = Tucumanzone, 'Alles flusst!'"

It should be noted here that Verbena incisa Chod. is actually a synonym of V. tomophylla Briq. The type of V. fulgens is a specimen collected by Aimé Jacques Alexandre Bonpland in Cor-

rientes, Argentina, and deposited in the Bonpland Herbarium at the Botanisches Museum in Berlin. The type of V. incisa Hort. is Herb. Martius s.n., collected, presumably by Carl Friedrich Philipp von Martius, from a cultivated plant in the Munich Botanical Garden and deposited in the herbarium of the Jardin Botanique de l'Etat at Brussels, with a note on the label that it is perhaps a hybrid with V. teucroides. The type of V. chamaedryfolia a melindres f. siccanea was collected by Cornelius Osten (no. 10612) at La Falda, at an altitude of 1000 meters, in the Sierra Chica, on April 22, 1917, and is deposited at the Museo de Historia Natural at Montevideo. The type of V. megapotamica f. truncatula was collected by Emil Hassler (no. 567) on a campo at Guazue, Paraguay, in July, while that of var. truncatula was gathered by Carl Axel Magnus Lindman (no. A.3901) at Paraguari, Paraguay, in October, 1893, and is deposited in the herbarium of the Naturhistoriska Riksmuseum at Stockholm. The latter was erroneously listed by me (1959) as a synonym of V. scrobiculata, but this is not true unless Osten is correct in his interpretation of that species as being the common Tucumán plant -- an opinion which I accepted when I first examined and identified the Tucumán material, but to which I do not now hold.

The type of V. briquetiana and of its f. campestris is apparently Osten 8046 from along a roadside at San Bernardino, Paraguay, collected on August 18, 1915, and deposited at the Naturhistoriska Riksmuseum in Stockholm, while that of V. briquetiana f. silvatica and of V. melindroides f. briquetiana is Osten 9017 from shady places at San Bernardino, collected on August 11, 1916, and deposited in the same herbarium. All of these names were erroneously referred by me to V. scrobiculata in my 1959 work. Osten's V. briquetiana x tenuisecta Briq. is discussed by me under the name xVerbena trinitensis Moldenke, which see.

Bailey & Bailey 925 and 925b are typical V. incisa, but no. 925a -- "runners and flowers from one plant, scarlet, colonized along railroad" -- is doubtfully this. Presumably, however, all were collected at the same spot. R. E. Fries 557 may be a hybrid with V. peruviana -- its leaves are very small, and the collector describes the flowers as red inside and pink outside and says that the plant is very rare in hard dry open places.

In Lilloa 6: 331 (1941), as well as in my Prelim. Alph. List Invalid Names 46 (1940) and Alph. List Invalid Names 48 (1942), V. incisa lus. albiflora Osten is given as a synonym of V. incisa, and A. G. Schulz 1478 is cited, but these are now regarded by me as V. incisa f. albiflora Osten & Moldenke, which see. Morong, Britton, & Vail (1892) cite Morong 51 as V. peruviana (L.) Britton.

It should be noted here that the name, Verbena incisa, apparently should be accredited to Marnock who first published it with a color plate, not there credited to Hooker or anyone else,



in 1838. It is also very possible that the proper name for this taxon is V. peruviana (L.) Britton, a name based on Lychnidaea, veronicae folio, flore coccineo Feuill. (1725), to which Linnaeus in 1753 merely added a Latin descriptive sentence and the binomial, Erinus peruvianus. Feuillée's type was collected on the north bank of the La Plata River in Paraguay (not in Peru) and his description points to V. incisa rather than to the taxon now passing as V. peruviana. I hesitate, however, to make this change without having actually seen Feuillée's specimen. If this change were made, then what is now passing as V. incisa Hook. would become V. peruviana (L.) Britton, and what is now passing under the latter name would become V. chamaedryfolia A. L. Juss.

Numerous vernacular and common names have been recorded for V. incisa, including "camaradinha", "cut-leaved verbena", "cut-leaved vervain", "eingeschnittenblättrige Verbene", "jurujuba", "margarita", "margarita del campo", "margarita peztá", "margarita punzo", "margarita punzó", "margarita roja", "Mr. Bunney's triumphant vervain", "pubbeeten", "scarlet verbena", "verbena roja", "verbenen", and "verveine à feuilles incisées".

Herbarium material of this species has been widely misidentified and distributed under such names as V. chamaedrifolia Juss., V. chamaedrifolia L., "V. chamaedrifolia var. nov.", V. chamaedryfolia Juss., V. chamaedrifolia var. melindroides Schau., V. chamaedryfolia  $\alpha$  melindres (Gill.) Schau., "V. chamaedryfolia forma" (by Hassler and by Osten), V. hassleriana Briq., V. marruboides Cham., V. megapotamica Spreng., V. megapotamica var. tweediana (Niven) Kuntze, V. melindroides Cham., V. montevidensis Spreng., V. peruviana (L.) Britton, V. peruviana R. & P., V. platensis Spreng., V. scrobiculata Griseb., V. tenuisecta Briq., V. tweediana Hook., and even Lippia nodiflora (L.) Rich. Osten annotated Rojas 3395 as "V. chamaedryfolia Juss. hybrida?", while on Jacinta s.n. [Herb. Osten 7079] he says "V. chamaedryfolia Juss. ad melindroidem vergens."

On the other hand, the Herb. Hort. Bot. Basil. s.n. [Aug. 1839] and the J. K. Small 8745, distributed in herbaria as V. incisa, are actually V. hybrida Voss, Ekman H.12615 is V. tenuisecta Briq., and the Jørgensen 2636 cited in my Alph. List Cit. 2: 599 (1948), Herb. Osten 14552, and Herb. Inst. Miguel Lillo 31373 are V. tomophylla Briq. Beale (1940) regards V. incisa as a variety of V. phlogiflora.

Verbena incisa has been collected along roadsides, streets, and highways, in woods and wet meadows, rather moist woods, fields, dry fields, and pastures, in cultivated and sandy cultivated ground, along river banks and shores, in potreros and pedregal, on barren hilltops with flat outcrops of rock, on grassy campos, high and low campos, in barnyards and copses, in sandy soil and high fertile sandy prados, in dry riverbeds and floodplains, at the edge of woods, along dry roadsides, on uncultivated campos, on dry

sandy banks and dry sunny banks, in waste ground, and along railroad tracks, mostly in full exposure to the sun, growing at altitudes of 20 to 3100 meters, flowering and fruiting in every month of the year. Troncoso (1937) reports it as cultivated in Buenos Aires, Argentina.

Eyerdam & Beetle found it in sandy alluvial soil near streambeds in the shade of shrubby yellow-flowered mimosas, while Ritter found it growing in a region of 1.5 m. rainfall and 10--35° temperature variation. Schwarz reports it as "rare" at Gob. Roca, Misiones, but Quiroga says that it is "abundant in high sandy waste soil" in Misiones. Rosengurtt found it "common along roadsides among shrubs", Jørgensen reports it "common on the campos at Villarica", common at Formosa, and common as El Candado in Catamarca. Morong says "this scarlet-flowered trailing Verbena seems to grow all over Paraguay and [blooms] nearly all the year round. I found it not only in copses about Asuncion, but also in the streets of the city, and far up on the Pilcomayo River. It is equally common a hundred miles east of Asuncion. The stems sometimes climb up among bushes for 6 dm. or more." Mexia describes it as "all along the roadside from Tucumán to Racas....one of the commonest flowering plants." Schulz reports it as "abundant" at Colonia Benítez in Chaco, and "in fertile soil of fields, abundant" at Tucumán; Hunziker found it "frequent" at Coronel Moldes in Salta; Herzog says that it is very common in the potrero at Charagua, Santa Cruz; and Meyer avows that it is "frequent in gardens and disturbed ground" at Resistencia. He says for his no. 277 that it is "very rare", but since he describes the flowers of this collection as being pale-rose it may well be that it represents a hybrid. G. J. Schwarz 615 is anomalous -- its leaves are not as ovate as is usual for this species.

Hooker & Jackson (1895) state that V. incisa is native to Panama, but this is certainly an error. The species is known to me only from Brazil, Bolivia, Paraguay, Uruguay, and Argentina, although it is cultivated elsewhere and is probably one of the parents of the commonly cultivated xV. hybrida Voss. It is said to have been introduced into cultivation in or about 1826 -- it was certainly in cultivation in Belgium and France in 1838, in Italy in 1842, and in Spain in 1849. It is recorded as cultivated in Argentina by Parodi (1934) and Troncoso (1937).

Rümpel (1873) says: "Brasilien. -- Einjährig, im Gewächshause ausdauernd. -- Diese Art, obschon sie ziemlich allgemein nur als eine Varietät der vorigen [V. platensis] betrachtet wird, unterscheidet sich doch von ihr in augenfälliger Weise ebenso wohl durch ihr fiederschnittigen, gelappten Blätter, wie durch ihre rosenrothen und geruchlosen Blumen. Aus Samen kommt diese Art mit allen ihren Merkmalen unverändert wieder und niemals bemerkt man unter den Sämlingen Pflanzen, welche mit Verbena teucrioides Aehnlichkeit hätten. Auch von dieser Art hat man durch Kreuzung mit der vorigen Art eine Anzahl von Varietäten erzielt, welche sich untereinander nur durch die grössere oder geringere Intensität der rosenrothen Färbung unterscheiden. Kultur und Verwendung

wie bei Nr. 7 [xV. hybrida]."

Augusto (1946) cites an unnumbered Tweedie collection from "Brasil meridional", as well as unnumbered collections by Augusto, Augusto & Edésio, and by Bornmueller from Rio Grande do Sul. The Reichenbach f. 180879, cited below, does not bear any indication on its label that it was from a cultivated plant, but I am assuming that it was.

The Curtis, Bot. Mag. 65: pl. 3628 reference is sometimes cited as "1837" or "1838", but this plate appears not to have been published actually until 1839. It should be noted, also, that Marnock, in his Floricult. Mag. 5: 87--88 (1840) cites his Verbena triumphans to "fig. 3" of plate 54. The numbers, however, seem to have become transposed on the plate -- V. triumphans is illustrated as fig. 1, fig. 3 being V. rigida Spreng. and fig. 2 being Lythrum roseum Marnock.

The Florida record for V. incisa given by me in my Résumé Supplement 5: 2 (1962) was based on J. K. Small 8745, which I now regard as xV. hybrida Voss.

In all, 310 herbarium specimens, including type material of most of the names involved, have been examined by me.

Citations: BRAZIL: Paraná: Dusén 13564 (S, W--1481775); F. C. Hoehne s.n. [Curitiba, Oct. 18, 1928] (N, Sp--23061). Rio Grande do Sul: Collector undesignated 555 [Herb. Mus. Nac. Rio ref. V] (Ja); Henz 33438 (N); Leite 250 (N); Malme 640 (S), 1274 (S); Rambo 8990 (Sp--50983); Ritter 35460 (S); J. Vidal s.n. (Ja--46548). Santa Catarina: R. Fischer s.n. [Lencol, Feb. 8, 1920] (Sp--3679); F. Müller 96 (Ja--46534); Reitz 2233 (N), C.882 (Ja--55301, N). São Paulo: Bailey & Bailey 925 (Ba, Ba), 925a (Ba), 925b (Ba); A. Betzler s.n. [Herb. Jard. Bot. Rio Jan. 61346] (N); F. C. Hoehne s.n. [Campos do Jordão, Sept. 17, 1923] (N, Sp--8712). State undetermined: Sellow 3838 (Vt), s.n. [Brasilia] (Br, Vt). BOLIVIA: Santa Cruz: W. M. A. Brooke 5550 (Bm, N); T. Herzog 1217 (S). Tarija: R. E. Fries 1104 (N, S). PARAGUAY: C. Alvarez s.n. [Asuncion, 1954] (Je--8583, Je--8657), s.n. [Piribebuy, 1954] (Je--8729); Anisits 1978 (S), 2238 (S); Archer 4666 (N, N, W--1705489); Fiebrig & Osten s.n. [Herb. Osten 8062] (Ug); Hassler 567 (N), 2584 (N), 9252 (Bm), 12335 (N, W--1057289); Herter 84432 (N); Jürgensen 3772 [Herb. Osten 2242] (Du--197837, N, S, Ug, W--1483629); Lindman A.3901 (N, S, S); A. Lutz 1505 (Z); T. Meyer 15871 (N), 16162 (N); Morong 51 (C, Mi, W--71998, W--1417059); Osten 8046 (N, S, Ug), 9017 (S, Ug); Edw. Palmer s.n. [Capt. Page Exped. 1854] (W--227576), s.n. [Pilcomayo, Capt. Page La Plata Exped.] (W--227578); T. Rojas 1396 [Herb. Osten 7899] (Ug), 1894 [Herb. Hort. Parag. 10057; Herb. Osten 13572] (Ug), 3395 [Herb. Osten 17905] (Ug), s.n. [Herb. Osten 7535; Herb. Hicken 1192] (Ug), s.n. [Herb. Osten 15644] (N, Ug), s.n. [Herb. Osten 13572] (S); Sandeman 4861 (K); A. G. Schuls 7815

(Sz); Woolston 731 (W--2338284). URUGUAY: C. Alvarez s.n. [Trinidad, Junio 1954] (Je--8703); H. H. Bartlett 21096 (W--1907618); Herter 1057 [Herb. Herter 82941] (B, W--1422055), s.n. [Herb. Osten 19218] (Ug); Osorio s.n. (Ug--13943, Ug--13989); Osten 3196 (N, Ug, Ug); Rosengurt B.2244 (N, Ug--5606). ARGENTINA: Buenos Aires: Cunningham s.n. [Buenos Ayres] (Bm); Sota 5 (N), 51 (N). Catamarca: Brücher & Brücher s.n. [21/1/49] (Ew); Jørgensen 1028 [Herb. Inst. Miguel Lillo 31350; Herb. Osten 11421] (Au, Ug); Rodríguez Vaquero 907 (Gg--353257, N); Schreiter 6437 [Herb. Inst. Miguel Lillo 32771] (N); Sleumer 2694 (Ca--49220, W--2168457); Venturi 7164 (Gg--161334). Chaco: R. M. Aguilar 844 (S); Boffa 1090 (N, N); Jørgensen 2466 [Herb. Inst. Miguel Lillo 31375; Herb. Osten 11866] (N, N, N, Ug, W--1055176); Malvárez 1365 (Gg--352673, N); T. Meyer 143 [Herb. Osten 22661] (Ug), 277 [Herb. Osten 22945] (Ug), 290 (Ug--10932), 2673 (N); T. Rojas 11785 (N); A. G. Schulz 277 [Herb. Osten 22945] (N), 1475 (N), 3988 (N); C. C. Schulz 783 (N, St); Venturi 33 (W--1043609). Córdoba: Caputanelli s.n. [Ruiz Leal 15990] (Ss); Lorentz 13 (Br), 436 (Sg--68311); O'Donnell & Rodríguez 481 (N, Ut--72505b); Osten 10612 (Ug), 17086 (Ug); Rodrigo 246 (S); Ruiz Leal 12099 (Ss). Corrientes: Bonpland s.n. (N); Ibarrola 770 (W--1934120); Rodrigo 705 (N, N), 855 (N). Entre Ríos: T. Meyer 10154 (N); Ruiz Huidobro 3493 (N), 3565 (N), 3603 (N). Formosa: Eyerdam & Beetle 22937 (Ca--652376), 22954 (Ca--652379); Jørgensen 2469 [Herb. Osten 13667] (Ug); I. Morel 38 (N), 199 (N), 419 (N), 789 (Bm, S), 1008 (N, S), 1178 (N, Rf, S), 1493 (N), 2003 (N, Ok); Pierotti 4123 (Gg--353255, N). Jujuy: Eyerdam & Beetle 22355 (Ca--652259); Garolera & Romero 56 (N), 140 (N); Schreiter 515 [Herb. Inst. Miguel Lillo 31495] (N), 5151 [Herb. Osten 20013] (Ug); Venturi 5270 (Ca--342587, Gg--158412, N, W--1591468); J. West 6281 (Ca--561720). Misiones: Bertoni 1942 (N), 2251 (N), 2342 (N), s.n. [Herb. Inst. Miguel Lillo 28412] (N), s.n. [Santa Ana, 15-III-1944; Herb. Inst. Miguel Lillo 98412] (W--1931294); Ekman 1978 (N, S); Grüner 6 [Herb. Osten 23182] (Ug); J. H. Hunziker 773 (N); Jacinta s.n. [Herb. Osten 7079] (Ug); Lilliesköld s.n. [vic. of Colonia Bonpland] (S); Montes 1091 (N), 2435 (Gg--352671, N); Quiroga 164 [Herb. Osten 7683] (Ug); Rodríguez 576 (N); A. G. Schulz 6869 (Sz); G. J. Schwarz 615 (Bm, Ca), 1179 (S), 1243 (S), 2052 (Gg--353259, N), 2780 (S), 3000 (N), 3124 (N, S), 3162 (N). Salta: R. E. Fries 557 (S); Hunziker 1033 (W--1804066); Moldenke & Moldenke 19739 (N); Ruiz Leal 12627 (Ss); Steinbach 1611 [Herb. Inst. Miguel Lillo 31357] (N). San Luis: Pastore 2007 (N). Santa Fé: R. Alvarez 858 (S), 909 (Es, N); Balegno 499 (N); Job 1071 (N, S); Ruiz Leal 14321 (Ss); Terrib-

ile 366 (N, Ok), 448 (N, Ok), 476 (N), 492 (N); Venturi s.n. [Herb. Mus. Argent. Cienc. Nat. 23672] (N). Santiago del Estero: H. H. Bartlett 20421 (Mi); Maldonado R. 472 (N); E. Wall s.n. [Escolta, 9/11/46] (Ew); Wall & Sparre s.n. [Guardia, 9/11/46] (Ew). Tucumán: Bailetti 58 (N); Bellomo s.n. [12/IX/1945] (N); Borsini 3 [Herb. Inst. Miguel Lillo 20403] (Bm, Ug--6397, Ut--115423b); Descole 1548 (N); Descole & Schreiter s.n. [Herb. Inst. Miguel Lillo 86115] (Bm, Ca--164751); Ferreyra 4059 (Ok); R. E. Fries s.n. [near Tucumán, 16-10-48] (S); Lillo 3220 [Herb. Inst. Miguel Lillo 31360] (N, N), 6181 [Herb. Osten 8458] (Ug); Lourteig 487 (N); Mexia 7832 (Ca--644015, N); T. Meyer 9799 (N); Moldenke & Moldenke 19721 (N), 19724 (N), 19754 (Es, Lg, N, Sm); Monetti 162 [Herb. Osten 10874] (Ug), 1623 [Herb. Inst. Miguel Lillo 31355] (N), s.n. [Herb. Inst. Miguel Lillo 31354] (N); Peirano s.n. [Herb. Inst. Miguel Lillo 32193] (N); Rocha 3693 (W--2198114), s.n. [San Augustin, s-X-1951] (Ba); Ruiz Leal 12401 (Ss), 12621 (Ss); Schreiter 8104 [Herb. Inst. Miguel Lillo 32810] (N), s.n. [Herb. Osten 12184] (N, Ug); A. G. Schulz 2887 (N); C. Skottsberg s.n. [Estacion Agricola Experimental, 16/10/1948] (Go, S); Sparre 404 (S), 737 (S), 1106 (S); Terribile 157 (N, Rf); L. A. Varela s.n. [Marifio, 9.III.1944] (Es, N); Venturi 378 [Herb. Osten 17242] (Ca--342611, Du--372485, N, N, S, Ug, W--1591218), 378b (Gg--151842, W--1343237), 2433 (N), 7360 (E--962368, W--1440924); E. Villa 453 (N), 680 (N); Wall & Sparre s.n. [Sabadilla, 19/11/46] (Ew), s.n. [Tafi Vieja, 19/11/46] (Ew), s.n. [Concepcion, 24/11/46] (Ew). Province undetermined: Friedmann s.n. [1923] (Ba). CULTIVATED: Austria: Reichenbach f. 180879 (V). Belgium: Herb. Martens s.n. [h. b. lov. 1838] (Br, Br); M. Martens s.n. [h. b. lov. 1839] (Br). Brazil: Bailey & Bailey 1234 (Ba); Sampaio 38 (Ja--46497), 7647 (Ja--46514), 7675 (Ja--46515, N), 7705 (Ja--46517, N). France: Herb. Harvey s.n. [h. R. P. 1838] (Du--166459), s.n. [h. R. P., julio 1844] (Du--166460). Germany: Herb. Martius s.n. [h. Monac.] (Br, Br); Herb. Mus. Bot. Lund. s.n. [Schwiebus, Aug. '72] (Lu); Herb. Prager 18643, in part (Gg). Italy: Herb. Harvey s.n. [hort. Bellovae 1842] (Du--166460). Spain: Herb. Hort. Matrit. 23 (Q). LOCALITY OF COLLECTION UNDETERMINED: Collector undesignated 20 (Q), 21 (Q), 22 (Q), 24 (Q); Herb. Mus. Bot. Stockholm 2109x (S).

VERBENA INCISA f. ALBIFLORA Osten & Moldenke ex Moldenke, Phytologia 3: 176. 1949.

Synonymy: Verbena incisa Lus. albiflora Osten ex Moldenke,

Prelim. Alph. List Invalid Names 46, in syn. 1940.

Bibliography: Moldenke, Prelim. Alph. List Invalid Names 46. 1940; Moldenke, Alph. List Invalid Names 48. 1942; Moldenke, Phytologia 3: 176. 1949; Moldenke, Known Geogr. Distrib. Verbenac.,

[ed. 2], 106 & 198. 1949; Moldenke, *Résumé* 127, 367, & 472. 1959.

This form differs from the typical form of the species in having white corollas.

The type of the form was collected by Teodoro Meyer (no. 518, in part) at Fontana, Chaco, Argentina, in October, 1931, and is deposited in the Osten Herbarium at the Museo de Historia Natural at Montevideo. The collector calls it "verbena de flores blancas" and says that it is "very rare". He describes it as a creeping perennial herb, 30--40 cm. long, the white flowers without fragrance, growing in campos and fertile prados. In my 1940 and 1942 works, cited above, I included this form in typical *V. incisa*, but now feel that it is worthy of nomenclatural recognition.

In all, 5 herbarium specimens, including the types of both names involved, and 4 mounted photographs have been examined by me.

Citations: ARGENTINA: Chaco: T. Meyer 518 [Fontana, Oct. 1931; Herb. Osten 22699] (F—photo of type, N—photo of type, Sg—photo of type, Ug—type, Ug—isotype, Z—photo of type), 518 [Colonia Benítez, Dec. 1932; Herb. Osten 22946] (Ug); A. G. Schulz 1478 (N, N).

xVERBENA INHONESTA Moldenke, *Phytologia* 5: 133. 1955.

Synonymy: Verbena urticifolia x prostrata Dermen, *Cytologia* 7: 170. 1936. Verbena lasiostachys Link x V. urticifolia L. ex Moldenke, *Résumé* 368, in syn. 1959. Verbena urticifolia L. x V. lasiostachys Link ex Moldenke, *Résumé* 377, in syn. 1959. Verbena urticifolia x lasiostachys Dermen ex Moldenke, *Résumé Suppl.* 2: 13, in syn. 1960.

Bibliography: Dermen, *Cytologia* 7: 170. 1936; Moldenke, *Phytologia* 3: 468 (1951) and 5: 133. 1955; Moldenke, *Biol. Abstr.* 30: 1093. 1956; Moldenke, *Am. Midl. Nat.* 59: 353. 1958; Moldenke, *Résumé* 223, 368, 377, & 472. 1959; Moldenke, *Résumé Suppl.* 2: 13. 1960.

This is the hybrid between Verbena urticifolia L. and V. lasiostachys Link produced artificially by Dermen in Massachusetts and described by him in 1936. The two parental species do not normally grow together in the wild, one "parent" being native to the eastern United States and the other west of the Rocky Mountains. It is probable, therefore, that this hybrid will never be found in the wild state unless the parental species happen to become introduced at some future date in each other's territory. I doubt if it would have any horticultural merit.

VERBENA INTEGRIFOLIA Sessé & Moc., *La Naturaleza*, ser. 2, 1: app. [Pl. Nouv. Hisp., ed. 1] 6 [as "Uerbena"]. 1889 [not Verbena integrifolia Michx., 1845, in syn.].

Synonymy: Verbena integrifolia Sessé & Moq. ex Moldenke, *Phytologia* 2: 115, sphalm. 1945.

Bibliography: Walp., *Repert. Bot. Syst.* 4: 18. 1845; Sessé & Moc., *La Naturaleza*, ser. 2, 1: app. [Pl. Nouv. Hisp., ed. 1] 6.

1889; Sessé & Moc., Pl. Nouv. Hisp., ed. 2, 6. 1893; Hook. f. & Jacks., Ind. Kew. 2: 1179. 1895; Hill, Ind. Kew. Suppl. 7: 249. 1929; Perry, Ann. Mo. Bot. Gard. 20: 342 & 355. 1933; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 18, 80, & 101. 1942; Moldenke, Known Geogr. Distrib. Verbenac. Suppl. 1: 2. 1943; Moldenke, Phytologia 2: 87 & 115. 1945; Moldenke, Alph. List Cit. 1: 233. 1946; Moldenke, Alph. List Invalid Names Suppl. 1: 21. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 33 & 198. 1949; Moldenke, Résumé 39, 355, & 472. 1959; Lewis & Oliver, Am. Journ. Bot. 48: 639. 1961; Moldenke, Résumé Suppl. 3: 10 & 39. 1962.

Perennial bush; stems numerous, to 1.8 m. tall, sharply tetragonal, glabrous, shiny, deeply sulcate; nodes contracted, annulate; principal internodes 5--9.5 cm. long; leaves decussate-opposite, sessile, oblong or oblong-elliptic to elliptic, mostly narrow-elliptic, chartaceous, 2--5 cm. long, probably larger toward the base of the plant, 5--15 mm. wide, mostly acute, rarely rounded, at the apex, entire, narrowed to the rather broad sessile base, not clasping, glabrous above, with a very few appressed short hairs on the midrib beneath and along the margins; venation flat and inconspicuous above, the larger portions prominulous beneath; inflorescence axillary and terminal, spicate, numerous, usually somewhat paniculately disposed at the apex of the branches, rather long-pedunculate; peduncles slender, sharply tetragonal, glabrous or very slightly scattered-pilose, 5--10 cm. long, often with a pair of foliaceous bracts 5--16 mm. long at the apex subtending abbreviated secondary spikes; spikes filiform or slender, densely many-flowered, elongating to 8 cm. or more in age and then with the lower flowers widely separated; bractlets lanceolate, about 3 mm. long, usually equaling the calyx, white-ciliate along the margins at the base, acuminate or attenuate-acute at the apex; calyx 2.5--4 mm. long, antrorsely strigillose, short-apiculate at the apex; corolla small, pale-blue or purple, hypocrateriform, its tube slightly exserted from the calyx, glabrous on the outside, the limb about 3 mm. wide; chromosome number:  $n = 21$ .

The original very fragmentary description of this little-known species is "*Verbena tetrandra* spicis filiformibus foliis oblongo-ellipticis integerrimis. Fl. Mex. Habitat in Queretari circuitibus. Floret Maio. 4."

The species is known to me from only two collections, one of which was found in open rocky soil in the pine forest area on open rocky knolls in humid mountain valleys, from 2000 to 2330 meters altitude, flowering in August, and the other at 8300 feet altitude, flowering in June. Perry (1933) places it in her list of "Doubtful or Little-Known Species" and says of it "No known Mexican species of *Verbena* has entire leaves." However, the Gentry specimen cited below shows them very clearly and is said to have been taken from an "old" bush.

The *V. integrifolia* of Michaux is a synonym of *V. simplex* Lehm. and was published by Walpers (Repert. Bot. Syst. 4: 18. 1845) in

synonymy only, so therefore does not invalidate the use of the same epithet by Sessé & Mocino. Hooker & Jackson (1895) erroneously give the page reference of the Michaux name as "13", instead of "18".

According to Gentry V. integrifolia is called "verbena" locally, as, of course, are many members of this and related genera. Only 2 herbarium specimens have been examined by me.

Citations: MEXICO: Michoacán: R. L. Oliver 169 (Z). Sinaloa: H. S. Gentry 6174 (N).

xVERBENA INTERCEDENS Briq. in Chod. & Hassler, Bull. Herb. Boiss., sér. 2, 4: 1057. 1904.

Synonymy: Verbena bonariensis x ovata Briq. in Chod. & Hassler, Bull. Herb. Boiss., sér. 2, 4: 1057, in syn. 1904. Verbena bonariensis L. x V. ovata Cham. ex Moldenke, Résumé 359, in syn. 1959. Verbena ovata Cham. x V. bonariensis L. ex Moldenke, Résumé 371, in syn. 1959. Verbena tobaty Davis ex Moldenke, Résumé Suppl. 3: 41, in syn. 1962.

Bibliography: Briq. in Chod. & Hassler, Bull. Herb. Boiss., sér. 2, 4: 1057. 1904; Briq. in Chod. & Hassler, Plant. Hassler. 10: 479. 1904; Prain, Ind. Kew. Suppl. 3: 187. 1908; Moldenke, Lilloa 6: 332 (1941) and 8: 432. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 41 & 101. 1942; Moldenke, Alph. List Cit. 1: 263 & 264. 1946; Moldenke, Alph. List Invalid Names Suppl. 1: 22 & 26. 1947; Moldenke, Alph. List Cit. 2: 599 & 600 (1948) and 3: 687. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 99, 106, & 198. 1949; Moldenke, Phytologia 3: 75 & 76 (1949) and 3: 289. 1950; Acevedo de Vargas, Bol. Mus. Nac. Hist. Nat. Chile 25: 57. 1951; Moldenke, Phytologia 4: 188. 1953; Moldenke, Am. Midl. Nat. 59: 353-354. 1958; Moldenke, Résumé 110, 118, 119, 127, 359, 371, & 472. 1959; Moldenke, Résumé Suppl. 3: 29 & 41. 1962.

Coarse erect suffrutescent herb, 0.5--1.5 m. tall; stem pale yellow-green; leaves decussate-opposite, very stiff, pale yellow-green, paler beneath; bractlets pale yellow-green to purple-brown on the margins; calyx pale yellow-green; corolla blue or violet to rose or pale-mauve, paler in the throat, drying blue.

This is the natural hybrid between V. bonariensis L. and V. ovata Cham. Cotypes of the hybrid were collected by Emil Hassler (no. 3324) on a wet campo at Caraguatay and (no. 6149) in swamps near Tobaty, Paraguay. Briquet says: "Cette plante extrêmement intéressante possède à peu près l'inflorescence du V. ovata, à bractées raides, d'un violet foncé, mais les épis ne sortent que partiellement sessiles et réunis en ombelle, plusieurs d'entre eux sont ± longuement pédonculés, en corymbe plus lâche. En outre, les feuilles n'ont plus la forme largement ovée si caractéristique pour le V. ovata; elles sont oblongues, plus allongées et se rapprochent ainsi de celles du V. bonariensis. D'autre part, on distingue bien encore la V. intercedens du V. bonariensis, sous toutes ses formes, par la texture plus épaisse et plus raide des



feuilles, la face supérieure un peu luisante, la rugosité plus grande, les crénelures très aiguës, très robustes et plus rapprochées, les feuilles caulinaires souvent plus courtes (souvent 6 x 2 cm de surface); la partie supérieure de la tige est presque aphyllé; les épis sont très hérissés-glanduleux. Ces caractères assignent au V. intercedens une place intermédiaire entre les V. bonariensis et V. ovata, entre lesquels il oscille par tous ses caractères. Comme les V. ovata et bonariensis croissent ensemble dans les mêmes localités et les mêmes conditions d'habitat (marais à phases de dessiccation périodiques), nous croyons devoir interpréter cette plante comme le produit de croisement de ces deux espèces. On sait que dans l'Amérique du Nord, il existe de nombreux hybrides appartenant à cette section, et que, d'autre part, les espèces sud-américaines du groupe Nobiles ont produit dans les cultures de nombreux hybrides qui compliquent souvent beaucoup l'interprétation exacte des membres de ce groupe. Il n'y a donc rien de surprenant à constater des faits analogues entre les V. bonariensis et ovata."

Jørgensen reports that V. intercedens is "common" on the campo at Villarica. It inhabits low campos, wet places, and swamps in various stages of periodic drying-up, and has been collected in anthesis and fruit in September, November, December, and January. Herbarium material has been misidentified and distributed under the names V. bonariensis L., V. bonariensis var. longibracteata Kuntze, V. rigida Spreng., and V. venosa Gill. & Hook. On the other hand, the Jørgensen 3768, distributed as xV. intercedens, is actually V. bonariensis L. The Barro specimen cited below is very abnormal in appearance and may be virus-infected. Acevedo de Vargas (1951) states that Macbride's photograph 17422, cited below, was erroneously distributed as V. landbecki R. A. Phil. in her herbarium.

It is of interest to note that V. ovata — one of the reputed "parents" of this hybrid — has not yet been collected in Uruguay, although it has been found in the other localities where the hybrid has been encountered. One would suppose that both "parents" would be more plentiful than the hybrid everywhere where it occurs and would, therefore, be collected sooner and more often. Yet there seems to be no doubt whatever that V. ovata is one of the "parents" of this plant.

The Jørgensen 3774 collection, cited below, is a mixture with V. bonariensis var. conglomerata Briq., probably as a result of two separate collections distributed under the same number -- a practice which this collector seems to have followed in numerous other cases.

In all, 19 herbarium specimens, including type material of all the names involved, and 2 mounted photographs have been examined by me.

Citations: BRAZIL: Rio Grande do Sul: Rambo 43510 (Go, Go), 49696 (S). PARAGUAY: Archer 4821 (W-1705560); Hassler 6149 [Mac-

bride photo 17422] (Ca--944361--cotype, Kr--photo of cotype, N--cotype, N--cotype, N--photo of cotype, S--cotype), 8934 (V); Jørgensen 3770 [Herb. Osten 22245] (N, Ug), 3774, in part (Du--290264, N, S); Woolston 785 (B, W--2338285). URUGUAY: Berro 1626 (Ug); Rosa-Mato 728 (Ug--10047). ARGENTINA: Misiones: G. J. Schwarz 1896 (N). CULTIVATED: West Virginia: Davis & Davis 8061 (We).

VERBENA INTERMEDIA Gill. & Hook. in Hook., Bot. Misc. 1: 166. 1829 [not V. intermedia Penny, 1832].

Synonymy: Verbena gracilis Cham., Linnaea 7: 261--263. 1832 [not V. gracilis Desf., 1829]. Verbena tenuis Steud., Nom. Bot., ed. 2, 2: 751. 1841. Verbena chamissonis Walp., Repert. Bot. Syst. 4: 18. 1845. Verbena intermedia Gill. ex Lorentz, Veg. Nordeste Prov. Entre Rios 150. 1878. Verbena intermedia Gill. & Arn. ex R. A. Phil., Anal. Univ. Chil. 90: 616. 1896. Verbena intermedia Schau. ex R. A. Phil., Anal. Univ. Chil. 90: 616. 1896. Verbena bonariensis  $\alpha$  brevibracteata Kuntze, Rev. Gen. Pl. 3 (2): 254--255. 1898. Verbena bonariensis  $\beta$  longibracteata Kuntze, Rev. Gen. Pl. 3 (2): 255. 1898. Verbena tandilensis Speg., Contrib. Estud. Fl. Tandil. 41. 1901. Verbena bonariensis var. brevibracteata Kuntze ex Briq., Arkiv Bot. Stockh. 2 (10): 10. 1904. Verbena carollata Briq., Ann. Conserv. & Jard. Bot. Genève. 10: 101--102. 1907. Verbena corollata Briq., Ann. Conserv. & Jard. Bot. Genève. 10: 102, sphalm. 1907. Verbena bonariensis var. longibracteata Kuntze ex Moldenke, Prelim. Alph. List Invalid Names 45, in syn. 1940. Verbena carrollata Briq. ex Moldenke, Lilloa 14: 53, sphalm. 1948. Verbena bonariensis f. brevibracteata Kuntze ex Moldenke, Résumé 359, in syn. 1959. Verbena bonariensis f. longibracteata Kuntze ex Moldenke, Résumé 359, in syn. 1959. Verbena bonariensis Schau. ex Moldenke, Résumé Suppl. 2: 10, in syn. 1960 [not V. bonariensis Dill., 1938, nor L., 1753, nor Rendle, 1904, nor Vell., 1959]. Verbena rigida var. intermedia (Gill. & Hook.) Farwell ex Moldenke, Résumé Suppl. 3: 40, in syn. 1962.

Bibliography: Gill. & Hook. in Hook., Bot. Misc. 1: 166. 1829; Desf., Cat. Hort. Paris, ed. 3, 393. 1829; Cham., Linnaea 7: 261--263. 1832; Hook. & Arn., Bot. Beech. Voy. 58. 1832; Steud., Nom. Bot., ed. 2, 2: 751. 1841; Hook. & Arn., Bot. Beech. Voy. 484. 1841; Walp., Repert. Bot. Syst. 4: 18--19 & 27. 1845; Schau. in A. DC., Prodr. 11: 541. 1847; Schau. in Mart., Fl. Bras. 9: 188. 1851; Lorentz, Veg. Nordeste Prov. Entre Rios, ed. 1, 19, 86, 150, & 172. 1878; Griseb., Abh. K. Gesell. Wiss. Götting. 24: [Symb. Fl. Argent.] 276. 1879; Lorentz & Niederlein, Exped. Rio Negro 2 (bot.): 264. 1881; Lillo, Fl. Tucuman 94. 1888; Morong, Britton, & Vail, Ann. N. Y. Acad. Sci. 7: 198. 1893; Hook. f. & Jacks., Ind. Kew. 2: 1178 & 1179. 1895; R. A. Phil., Anal. Univ.

Chile 90: 616. 1896; Kuntze, Rev. Gen. Pl. 3 (2): 254--256. 1898; Speg., Contrib. Estud. Fl. Tandil. 41. 1901; Briq. in Chod. & Hassler, Bull. Herb. Boiss., sér. 2, 4: 1057. 1904; Briq. in Chod. & Hassler, Plant. Hassler. 10: 479. 1904; Briq., Ann. Conserv. & Jard. Bot. Genève. 7-8: 291. 1904; Briq., Arkiv Bot. Stockh. 2 (10): 10. 1904; Macloskie in W. B. Scott, Rep. Princeton Univ. Exped. Patag. 8 (2): 686. 1905; Briq., Ann. Conserv. & Jard. Bot. Genève. 10: 101--102. 1907; Prain, Ind. Kew. Suppl. 3: 187. 1908; Hassler, Fl. Pilc. 102. 1909; Hicken, Chloris Plat. Argent. 196. 1910; Glaz., Mém. Soc. Bot. France 1: 544. 1911; Hauman-Merck, Anal. Mus. Argent. Hist. Nat. Buenos Aires 24: 413. 1913; Prain, Ind. Kew. Suppl. 4: 245. 1913; Sanzin, Anal. Soc. Cient. Argent. Buenos Aires 88: 98, 115, & 134. 1919; Molfino, Physis 5: 22. 1921; Seckt, Rev. Univ. Nac. Cordoba 17: 90. 1930; Herter, Florul. Urug. 105. 1930; Herter, Revist. Sudam. Bot. 4: 186. 1937; Monticelli, Lilloa 3: 359. 1938; Herter, Revist. Sudam. Bot. 6: 97. 1939; Troncoso, Darwiniana 3: 480--482 & 485, fig. 1 & 3 e & f. 1939; Moldenke, Prelim. Alph. List Invalid Names 45 & 56. 1940; Moldenke, Suppl. List Invalid Names 8--10. 1941; Ragonese, Darwiniana 5: 413. 1941; Moldenke, Lilloa 6: 332--333. 1941; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 39, 41, 44, & 101. 1942; Moldenke, Alph. List Invalid Names 45--48 & 51. 1942; Moldenke, Lilloa 8: 429. 1942; Parodi, Darwiniana 6: 175. 1943; Rosengurtt, Estud. Prad. Nat. Urug. 3: 235 & 236 (1943) and 4: 8. 1944; Schnack & Covas, Darwiniana 6: 470 & 473. 1944; Moldenke, Lilloa 10: 346 & 347. 1944; Cabrera, DAGI Pub. Tec. 3: 45 & 75. 1945; Moldenke, Alph. List Cit. 1: 84--86, 197, 219, & 266. 1946; Rosengurtt, Estud. Prad. Nat. Urug. 5: 394. 1946; Schnack & Covas, Bol. Soc. Argent. Bot. 1: 284. 1946; Troncoso & Burkart, Darwiniana 7: 214 & 215. 1946; Augusto, Fl. Rio Grande do Sul 211 & 233. 1946; Moldenke, Alph. List Invalid Names Suppl. 1: 22. 1947; Ragonese & Covas, Darwiniana 7: 443, 445, 455, & 487. 1947; Lorentz, Veg. Nordeste Prov. Entre Rios, ed. 2, 19, 86, 150, & 172. 1947; Schnack & Covas, Haumania 1: 5 & 8, fig. 21. 1947; Moldenke, Castanea 13: 117. 1948; H. N. & A. L. Moldenke, Pl. Life 2: 53. 1948; Moldenke, Lilloa 14: 53. 1948; Moldenke, Phytologia 2: 482. 1948; Moldenke, Alph. List Cit. 2: 458, 532, 533, 574, & 575 (1948), 3: 687, 693, 703, 704, 781, 782, 798, 859, 874, 875, 913, 922, & 923 (1949), and 4: 1128, 1196, & 1300. 1949; H. N. & A. L. Moldenke, Anal. Inst. Biol. Mex. 20: 13. 1949; Cabrera, Lilloa 20: 175. 1949; Rosengurtt, Lilloa 20: 132. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 94, 100, 105, 106, 197, & 198. 1949; Moldenke, Phytologia 3: 76 & 135 (1949) and 3: 288, 289, & 305. 1950; Martínez Croveto & Pichinini, Revist. Invest. Agric. 4: 178 & 226. 1950; Martínez Croveto, Revist. Invest. Agric. 4: 362, 386, & 388. 1950; Rambo, Sellowia 7: 260. 1956; Moldenke, Résumé 110, 119, 126, 127, 359, 362, 365, 367, 376, 471, & 472. 1959; Moldenke, Résumé Suppl. 2: 5, 10, & 11 (1960), 3: 14, 37, & 40 (1962), and 4: 10. 1962.

Illustrations: Troncoso, Darwiniana 3: 481, fig. 1, & 485, fig. 3 e & f. 1939; Schnack & Covas, Haumania 1: 8, fig. 21. 1947.

Tall, erect, biennial or perennial herb from a woody creeping

rhizome, grayish-green throughout; stems mostly simple or sometimes branching, stout, strict, 0.5--1.5 m. tall, green, sharply tetragonal with rather prominent angles, very rough on the acute margins, sulcate and longitudinally striate between the angles, rather scabridulous above, otherwise smooth and glabrous, often rather densely hirtellous on the younger parts with sordid-grayish widely divergent hairs, glabrescent in age; branches slender, ascending, acutely tetragonal, longitudinally sulcate; nodes annulate; principal internodes 2--12 cm. long, those beneath the inflorescence longer than the rest; leaves decussate-opposite, sessile or subsessile, often subconnate; petioles (when present) very short; leaf-blades erect, stiffly coriaceous and rather rigid, uniformly dull- or light-green on both surfaces, not brunnescent in drying, 1--8 cm. long, 2--13 mm. wide, decreasing in size upwards, the lower ones cuneate-oblong or elliptic-oblong, rarely elliptic or elliptic-lanceolate, often shorter but broader than those immediately above, usually 3--8 cm. long and 5--10 mm. wide, those on the middle portions of the stem linear, oblong, lanceolate, or linear-lanceolate, all acute or acuminate-mucronate at the apex, strongly revolute along the margins, sharply incised-serrate or dentate toward the apex with a few rather sharp subequal teeth or entire, shortly prolonged into the petiole at the base, softly appressed-pubescent and scabridulous on both surfaces or lineate-rugose above and very rough with short callose hairs, hispidulous on the prominent venation beneath, rarely more or less pubescent throughout, the uppermost ones much reduced or even minute, sparse in the inflorescence, linear, 1--5 mm. long, 0.5--3 mm. wide, bractlet-like, stiff, entire, ciliolate; midrib slender, deeply impressed above, prominent beneath; secondaries slender, short, 4--6 per side, ascending, deeply impressed above, very prominent beneath; veinlet reticulation sparse, obscure or indiscernible on both surfaces; spikes terminal, distant or rather crowded, few (3--5), densely many-flowered, erect, the terminal one generally sessile and the lateral ones short-pedunculate, rather thick, 1.5--8 cm. long, normally 8--10 or more mm. wide, finally subcylindric, glandular-hirtellous throughout, the flowers and fruits closely imbricate; peduncles slender or rather slender, from subobsolete to 2.5 cm. long, sharply tetragonal, pilosulous or glandular-hirtellous; bracts 2 at each node of the inflorescence, lanceolate, rigid, about 3 mm. long, acuminate at the apex, glabrous; bractlets herbaceous, ovate-lanceolate or lanceolate, 3--4 mm. long, subequaling or equaling to longer than the calyx, rigid, acuminate or acute at the apex, densely glandular-hirtellous or pubescent on the back with rather short spreading hairs and ciliate-margined, with small stipitate glands mixed with the hairs toward the apex; calyx oblong or cylindrical, 3--5 mm. long, often colored reddish or bluish, 5-costate, densely glandular-hirtellous on the outer surface, its tube 2.5--3.4 mm. long, the rim subulate-toothed, the teeth lanceolate, about 0.5 mm. long; corolla varying from blue, pale-blue, blue-violet, bright blue-violet, or rose-blue to lilac, clear lilac, violet, pale-violet, or purple, sometimes with the tube clear purple on

the lower half and the rest white, 7—9 mm. long, mostly more than twice as long as the calyx, shortly glandular-puberulent or densely villosulous on the outside, the hairs comparatively long, stiff, and white, the limb well developed, about 3 mm. wide; stamens and pistil scarcely exerted from the corolla-mouth; cocci dark, oblong, about 2 mm. long; chromosome number: basic number = 7,  $2n = 28$  or 56.

The type of this often misunderstood species was collected by John Gillies on the pampas of Buenos Aires, Argentina ("in Provincia Bonariae, et in Pampas non raro occurrit"), and is deposited in the herbarium of the Royal Botanic Gardens at Kew. Cotypes of V. gracilis were collected by Friedrich Sellow at Barado and Curupa "in campo de Tacagua grande", Brazil, and are deposited in the herbarium of the Botanisches Museum at Berlin. Cotypes of V. tandilensis were collected by Carlo Luigi Spegazzini (nos. 2408 and 2409) in January, 1901, at Tandil, Argentina. The type of V. bonariensis var. longibracteata is R. Hauthal 649, collected at Ventana, Buenos Aires, in January, 1892, and deposited in the Britton Herbarium at the New York Botanical Garden. The type of V. carollata was gathered by Ernest Wilczek (no. 56) at Sierra Pintada, at an altitude of about 1400 meters, Mendoza, Argentina, in February, 1897, and is deposited in the Delessert Herbarium at Geneva. The pagination of the original description of this taxon is given erroneously as "100—101" in Lilloa 8: 429 (1942).

Kuntze describes his V. bonariensis var. longibracteata as "Bracteae comosae floribus parvis longiores. Folia lanceolata (1: 4—6)". His var. brevibracteata is based on undesignated collections from Tucumán, Argentina, from Contendas, Brazil, and from Montevideo, Uruguay, and is described by him as "Bracteae floribus parvis breviores vel subaequilongi." Seckt (1930) gives V. canescens H.B.K. as a synonym of V. intermedia, but this is erroneous. He apparently misinterpreted the statement of Schauer (1851) regarding V. gracilis Desf. (not Cham.) being in his opinion conspecific with V. canescens, a distinct species of Nevada, Texas, and Mexico. Verbena bonariensis  $\gamma$  longibracteata Walp. is conspecific with typical V. bonariensis L.

Verbena intermedia ranges from southern Brazil through Uruguay far into central Argentina. In Uruguay it has been collected at altitudes of 30 to 50 meters, and in Argentina at 50 to 2000 meters, the specimens from the higher Andean altitudes being in general more hairy. Quite characteristically galled inflorescences are seen on Legrand 1948 and 1985, Rosengurt B.1915, and numerous other collections from Uruguay and Argentina. The galled portions of the spikes on these specimens are to 14 mm. wide and are very conspicuously white-hairy.

The species has been found by collectors in meadows and dry meadows, grassy places and savannas, rocky places, rocky or stony hills, low, wet, or dry campos, stony or dry rocky campos, dry sandy sunny campos, pampas, swamps, grassy slopes, hills and arroyos, dunes, riverbanks, the borders of "acequias", in the wet

soil of meadows near rivers, in grassy rather wet campos, on mountains, in "lomas" [dry places], and on the shores of rivers. It is said to be frequent in fields, and has been found also on railroad embankments, at the edges of ditches, and among grass in very wet meadows. It is said to be frequent in wet soil, especially near rivers, and has been collected in anthesis from October to July, and in fruit in January, February, October, and November. Eyerdam, Beetle, & Grondona found it growing in black alluvium over stratified rock associated with pampas grasses and composites, and refer to it as an "annual". Hunziker found it "rather frequent" on the shores of Río Amzacate and also "rather frequent" on railroad embankments at Frenque Lanquen. Rosengurtt reports it as "common along railroad tracks" and, in his 1946 work, describes the plant as "Hierba frecuente en campos poco pacidos, vírgenes o de rastrojo". Ragonese & Covas (1947) refer to it as "Especie bienal o perenne, de tallos erectos, frecuente en rastrojos, campos cultivados, terrenos baldíos, etc." Cabrera (1949) says "campestre poco frecuente". Augusto (1946) cites a Sellow collection from "Campos do Brasil meridional", one of Roseburgurtt from Cerro Largo, Uruguay, and of Herter from Rivera, Uruguay. Ragonese (1941) cites Covas & Ragonese 3505 from Santa Fé, Argentina, while Martínez Crovetto & Piccinini (1950) cite their 4718 from Entre Ríos. They cite the original publication of the species as "1830" and describe the plant as "Planta herbácea, perenne, con flores azuladas, común en casi toda la Mesopotamia; vive frecuentemente en suelos arenosos y a veces tiene tendencia a invadir suelos modificados. Florece de primavera a otoño."

Rosengurtt describes his plant as "Hierba hemicriptófito, florece a fines de primavera y verano. Habita prados vírgenes no pastoreados. Es rara."

Briquet's comments about his V. corollata are perhaps worth repeating here: "Nous avons rapporté cette espèce en 1899 (in Ann. Cons. et Jard. bot. Geneve, IV, 18) au V. littoralis Kunth, conçu à cette époque dans un sens très vaste. Une étude plus attentive de ce groupe, fait depuis lors, nous a amené à détacher du V. littoralis plusieurs types parfaitement distinctes (V. isabellei, V. cordobensis). Le V. corollata s'écarte à son tour du V. littoralis principalement par sa corolle à tube siphonné longuement exsert (dépassant à peine les dents calicinales dans le V. littoralis), son calice oblong, plus grand, ses épis presque du double plus gros, etc."

Philippi (1896) was of the opinion that the plant described as V. intermedia by Schauer (1847) is not conspecific with that of Gillies & Hooker (1829), but there seems no doubt to me that they are the same. Rosengurtt (1943) describes the species as "Hierba hemicriptófito, florece en verano y principios de otoño. Habita praderas vírgenes de ladera, o uliginosas. Es escasa." Parodi (1943) says "habita en la estepa". Cabrera (1945) describes it as "Hierba perenne, erecta, de alrededor de 1,5 metros de altura, con tallo cuadrangular y hojas opuestas, sesiles, lanceola-

das. Flores pequeñas, violáceas, dispuestas en espigas largas que se agrupan en panojas definidas. Frecuente en la estepa pampeana." Osten found it growing with V. bonariensis L. and suggested that it might be only a form of the latter or a hybrid with it, commenting "spicis elongatis cylindricis laxifloris". Schnack & Co-vas (1943) report that its chromosome picture is  $2n = 28$ , but in their 1946 and 1947 works report for "V. aff. intermedia" a picture of  $2n = 56$ , based on a plant cultivated at Capital, Mendoza, originally from Sierras de Balcarce, Buenos Aires.

Briquet in Ann. Conserv. & Jard. Bot. Genève. 7-8: 291 (1904) maintains that Kuntze's V. bonariensis var. brevibracteata is essentially characterized by its short bractlets which hardly equal the flowers in length or very slightly surpass them, the corollas being small, exceeding the calyx-teeth by only 1--1.5 mm, the limb being 1--1.5 mm. in diameter, and that therefore it is exactly synonymous with typical V. bonariensis. Kuntze's type, however, on which we must base the name regardless of the description given of it, and which I have examined, proves to be V. intermedia. Monticelli (1938) says of V. intermedia: "Es afín a la V. bonariensis, de la que se aparta por la corola larga dos veces la longitud del cáliz." Troncoso (1939) differentiates the two species as follows:

"A. Tallos estriados longitudinalmente, glabros, con las aristas de los ángulos mas o menos asperas. Limbo corolar bien desarrollado. Caliz y bracteas con pelos glandulares. Inflorescencias parciales distanciadas, c/u de 3--5 espigas, generalmente la terminal subsésil, las laterales pedunculadas. Hojas inferiores de 5--8 cm. de largo x 0,8--1 cm. de lat., borde dentado en su mitad superior, dientes subiguales. Plantas verde-cenicientas.....  
V. intermedia.

"B. Tallos lisos, hirsutos principalmente en las aristas de los ángulos. Limbo corolar reducido. Caliz y bracteas sin pelos glandulares. Inflorescencias parciales aglomeradas, c/u de 4--10 espigas subsesiles. Hojas inferiores de 9--13 cm. de long., x 1--1,5 cm. de lat., borde casi totalmente dentado, dientes desiguales. Plantas de color verde intenso.....V. bonariensis!"

Troncoso & Burkart (1946) say "V. intermedia....se distingue, aparte de los rasgos ya comentados, por flores más grandes y vistosas [than V. tristachya], de color violáceo intenso, limbo corolar bien desarrollado, cáliz y brácteas con pelos glandulosos, estilo breve y estambres fijos en la mitad inferior del tubo corolar.....V. intermedia y V. montevidensis tienen los tallos macizos.....El estudio anatómico del tallo de V. tristachya presenta como característica interesante, que la capa de parénquima clorofiliano es continua, es decir, que no se halla interrumpida en los ángulos por la columna esclerenquimática. Esta última estructura caracteriza a....V. intermedia." They describe the number of spikes as "infinitas".

Walpers (1845) places his V. chamissonis in Section Verbenaca,

Subsection Inermes, Group Foliosae, Subgroup Micranthae, and Secondary Subgroup Holophyllae, while V. intermedia is placed in Subgroup Macranthae, Secondary Subgroup Melindres. Schauer (1847) correctly combines them in his Section Verbenaca, Subsection Pachystachyae. The V. intermedia of Penny referred to above is a synonym of V. canadensis (L.) Britton.

A reference to V. intermedia in "Briq., Verb. Balans. Parag. 4" has not been verified by me as yet. In Lilloa 10: 347 (1944) it is stated that Gallinal, Aragone, Bergalli, Campal, & Rosengurtt PE.4605 is a mixture with V. carollata Briq., but I do not now believe this and regard it now as all V. intermedia. The common names "berbena" and "verbena" are recorded for V. intermedia, but are used also for many other species in this and related genera. The Steudel reference given above is sometimes cited as "1840", but appears to be more correctly dated 1841. Jürgensen 2468 is definitely V. bonariensis in the Montevideo herbarium and is definitely V. intermedia in the United States National Herbarium -- another example of this collector's habit of mixing several collections under the same number!

Hunziker describes the corolla on his no. 4003 as being clear "morada" on its lower half and the rest white. Hooker & Arnott record the species from Chile, apparently in error.

Herbarium material has been misidentified and distributed under the names V. bonariensis L., V. brasiliensis Vell., and V. carollata Briq. On the other hand, Jürgensen 3774, distributed as V. intermedia, is actually V. bonariensis var. conglomerata Briq.; Kuntze s.n. [Montevideo, 7/12/1891] is V. brasiliensis Vell.; Herter 1058 and Herb. Herter 82656 are V. gracilescens (Cham.) Herter; and Legrand 1992 & 3809 are V. montevidensis Spreng.

Glaziou (1911) cites his no. 14162a from Rio de Janeiro, Brazil [his no. 14162 he identifies as V. litoralis H.B.K., but I regard it as V. brasiliensis Vell. -- I have not seen his no. 14162a], while Briquet (1904) cites Hassler 1026a and Regnell A.3645. Troncoso (1939) cites the following: URUGUAY: Rosengurtt B.765 (Si), B.2513 (Si). ARGENTINA: Buenos Aires: Caretta 497 (Si); Hicken 475 (Si), s.n. [22-I-1900] (Si--3825); Pastore s.n. [21-XI-1937] (Si--1140); Pelosi 18 (Si); Spegazzini 2408 (Si), 2409 (Si), s.n. [I.1901] (Si); Troncoso s.n. [24-XI-1937] (Si--1246); Valentini 502 (Si). Chaco: Lynch s.n. [19-I-1904] (Si--3828). Córdoba: Burkart 7493 (Si); Nicora 1574 (Si). Corrientes: Burkart 8053 (Si); Hicken s.n. [Bonpland, XI-1929] (Si--3829). La Pampa: Monticelli C.17 (Si). Mendoza: Ruiz Leal 1046 (Si).

In all, 122 herbarium specimens and 10 mounted photographs, including type or phototype material of most of the names invol-



ved, have been examined by me.

Citations: BRAZIL: Rio Grande do Sul: Malme 136 (S), 136b (N, S), 808 (N, S); Rambo 9718 (Sp--50987), 34723 (N); A. R. Schultz 746 (N); Schwacke II.336 (Ja--46576); Sellow s.n. [Bras. merid.; Macbride photos 17423] (Br, Br, F--photo, Kr--photo, N--photo, N--photo, Si--photo, Z--photo); J. Vidal s.n. (Ja--36857). URUGUAY: Aplin s.n. [Sta. Elena, Nov. 1892] (Bm); Arechavaleta 31 (Ug), 32 (Ug), 38 (Ug), 41 (Ug), 102 (Ug, Ug), 3135, in part (Ug); Berro 37 (Ug), 4423 (N), 8472 (N); Cabrera 3890 (N); Castellanos s.n. [Herb. Inst. Miguel Lillo 11756] (N, N); Gallinal, Aragone, Bergalli, Campal, & Rosengurt PE.2621 (N), PE.2882 (N), PE.4605 (N, N); Herb. Herter 80042 (N); Herter 1155 [Herb. Herter 83295] (Ca-407266, N, N), s.n. [Herb. Osten 17032] (Ug), s.n. [Herb. Osten 18499a] (Ug); Legrand 1948 (Ug), 1985 (N, Ug), 2309 (Ug), 2571 (Ug), 4127 (Ug); Montoro Guarch 574 (N); Osorio 730 (Ug--13265); Osten 3661 (Ug), 3863 (Ug), 3947 (Ug), 4349 (Ug, Ug), 6567 (Ug), 7797 (Ug), 21669 (Ug, Ug), 21868 (Ug), 22650 (Ug), 22650a (Ug); Rosengurt 6018 (W--2028814), B.765 (Ca--79809, N, N), B.1915 (N, Qu), B.3246 (N), B.3255 (N). ARGENTINA: Buenos Aires: Cabrera 4288 (N), 5164 (N), 5749 (N); Eyerdam, Beetle, & Grondona 23642 (Ca--623654); Gillies s.n. [Pampas of Buenos Ayres] (N--photo of type, Z--photo of type); Hauman s.n. [Sierra Baya, V. 1923] (Br); Hauthal 649 (N); Hunziker 4003 (N); A. G. Schulz 5697 (Sz); Troncoso 1246 (W--1858347); Wall & Sparre s.n. [Sierra Bachiche, 2/11/46] (Ew), s.n. [Sierra El Volcan, 3/11/46] (Ew). Chaco: Jørgensen 2468, in part (W--1055178); A. G. Schulz 1481 (N). Córdoba: Burkart 7493 [Herb. Osten 23368] (N, Ug); A. T. Hunziker 701 (N); O'Donnell & Rodriguez 454 (Ut--115405b); Osten 13111 (Ug); Pierotti 5004 (N); Rodrigo 309 (N); Sparre 1422 (S), 1425 (S); E. Wall 5, in part [16/12/46] (Ew); Wall & Sparre s.n. [El Quebrado, 16/12/1946; 900 m.] (N), s.n. [El Quebrado, 16/12/1946; 1300 m.] (Ew). Corrientes: Burkart 8053 (Ca--3374, W--1858299); Parodi 12444 (N). Entre Ríos: Ruiz Huidobro 3492 (N), 3550 (N), 3649 (N). Formosa: Jørgensen 3408 (W--1065729). La Pampa: Fortuna 22 (Ca); A. G. Schulz 5842 (Ca--166282). Mendoza: D. O. King 137c (Bm); Lourteig 852 (Ca--166002); Ruiz Leal 1101 (N), 1171 (N), 1498 (N), 2980 (N), 5595 (N), 7084 (N), 8500 (N), 11388 (Rl); Ruiz Leal & Roig s.n. [Ruiz Leal 18809] (Z); Sanzin 3120 [Herb. Osten 15634] (Ug); Semper 343 (S); Wilczek 56 [Macbride photos 24683] (Kr--photo, N--photo). Misiones: Burkart 15449 (N, W--2056387); Ruiz Huidobro 4995 (N); A. G. Schulz 6903 (Sz); Schwacke 2249 [Herb. Mus. Nac. Rio ref. I] (Ja). San Luis: F. A. Roig 1327 [Herb. Ruiz Leal 19077] (Ok); Varela 566 (S); Vignati 7029 (W--1858375). Santa Fé: Fedderson

s.n. [Aurelia, near S. Fé] (Cp); Ruiz Huidobro 3138 (N). Province undetermined: Wall & Sparre s.n. (Ew).

*VERBENA INTERMEDIA* f. *ALBIFLORA* Moldenke, *Phytologia* 3: 176. 1949.  
Bibliography: Moldenke, *Phytologia* 3: 176. 1949; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 106 & 198. 1949; Moldenke, *Résumé* 127 & 472. 1959.

This form differs from the typical form of the species in having white corollas.

The type of the form was collected by Arturo Burkart (no. 4179) in xerophilous woods on the steppe at Gualeguaychú, Entre Ríos, Argentina, on January 5, 1932, and is deposited in the Osten Herbarium at the Museo de Historia Natural at Montevideo. The form is known thus far only from the type collection, of which 1 herbarium specimen and 4 mounted photographs have been examined by me.

Citations: ARGENTINA: Entre Ríos: Burkart 4179 [Herb. Osten 22466] (F--photo of type, N--photo of type, Sg--photo of type, Ug--type, Z--photo of type).

*VERBENA INTERMEDIA* f. *GLABRESCENS* Hauman-Merck, *Anal. Mus. Argent. Hist. Nat. Buenos Aires* 24: 413. 1914.

Bibliography: Hauman-Merck, *Anal. Mus. Argent. Hist. Nat. Buenos Aires* 24: 413. 1914; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 106 & 198. 1949; Moldenke, *Résumé* 127 & 472. 1959.

This form differs from the typical form of the species in being subglabrous and in having non-auriculate leaves which are hardly subamplexicaul at the base, the flower spikes 15--18 mm. long and 4 mm. wide, the lanceolate bractlets, and the corolla often more than twice (but never 3 times) as long as the calyx.

The type of the form was collected by Lucien Hauman-Merck (no. 344, in part) near the shores of the Río Negro and its islands, in protected spots, Río Negro, Argentina, where the author says that the species itself is very common [but from where I have seen no specimens of it as yet!]. He notes that the form is like certain forms of *V. litoralis* H.B.K. except for the greater length of the corolla. No material has as yet been seen by me.

*VERBENA INTERMEDIA* var. *LANUGINOSA* Moldenke, *Phytologia* 3: 118. 1949.

Bibliography: Moldenke, *Phytologia* 3: 118 & 135. 1949; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 106 & 198. 1949; Moldenke, *Résumé* 127 & 472. 1959.

This variety differs from the typical form of the species in having its stems, branches, peduncles, and leaves (especially the lower surface) very densely lanuginous. The corolla is said to be blue.

The type of the variety was collected by Adrian Ruiz Leal (no. 2981) at the edge of a dry river at La Pampa, San Pablo, dept. Tunuyan, Mendoza, Argentina, on February 6, 1935, and is deposited in the Britton Herbarium at the New York Botanical Garden. The variety is known thus far only from the original collection, of

which 1 herbarium specimen and 4 mounted photographs have been examined by me.

Citations: ARGENTINA: Mendoza: Ruiz Leal 2981 (F--photo of type, N--type, N--photo of type, Sg--photo of type, Z--photo of type).

VERBENA JORDANENSIS Moldenke, *Phytologia* 2: 237. 1947.

Synonymy: Verbena pusilla Dusén ex Moldenke, *Résumé* 373, in syn. 1959.

Bibliography: Moldenke, *Phytologia* 2: 237. 1947; Moldenke, *Castanea* 13: 117. 1948; Moldenke, *Alph. List Cit.* 2: 598 (1948) and 4: 1249 & 1287. 1949; Moldenke, *Known Geogr. Distrib Verbenac.*, [ed. 2], 94 & 198. 1949; Moldenke, *Phytologia* 3: 134 (1949) and 3: 454. 1951; Stellfeld, *Trib. Farmac.* 19 (10): 166. 1951; E. J. Salisb., *Ind. Kew. Suppl.* 11: 263. 1953; Angely, *Fl. Paran.* 7: 13. 1957; Moldenke, *Résumé* 110, 373, & 472. 1959; Angely, *Fl. Paran.* 16: 78 (1960) and 17: 46. 1961.

Perennial herb, about 16 cm. tall, abundantly branched from the base, bushy; branches decussate-opposite, obtusely tetragonal, rather densely spreading-pubescent, brown when dry; principal internodes 1--2 cm. long; leaves decussate-opposite, sessile; petioles 1 mm. long or less, winged; leaf-blades ovate, tripartite, 7--25 mm. long, 5--15 mm. wide, each of the 3 divisions again lobed or incised, the lobes narrow and obtuse, more or less asperulous-strigillose above, spreading pilosulous on the venation and margins beneath, the margins subrevolute; midrib and secondaries subimpressed above, prominulous beneath; inflorescence axillary, racemose, the racemes few-flowered, 1--2 cm. long in fruit, usually less than 1 cm. long during anthesis; peduncles filiform, obsolete during anthesis, to 1 cm. long in fruit and spreading-pubescent like the branches; bractlets ovate, about 3 mm. long, 1 mm. wide at the base, thinner toward the margins especially toward the base, attenuate to the sharply acute apex, rather irregularly long-ciliate along the margins, especially toward the base, reflexed in age; calyx tubular, about 4 mm. long, 5-costate, very shortly 5-apiculate on the rim, the costae spreading-pubescent, otherwise glabrate, the apiculations coherent after anthesis; corolla hypocrateriform, rose or white, its tube narrow-cylindric, about 4 mm. long, the limb about 2 mm. wide, glabrous, irregularly 5-lobed; ovary subtended by a cupuliform disk about 1 mm. in diameter, which remains in the axil of the bractlet after the fruiting-calyx and fruit have been shed; fruiting-calyx not enlarged, readily splitting when the fruit matures, the apiculations remaining coherent almost up to the time of shedding of the fruit; nutlets narrowly oblong, about 2 mm. long, reticulate-scrubulate on the back on the upper half, with parallel longitudinal ridges on the lower half, glabrous, shiny.

The type of this most interesting and distinctive species was collected by José Eugenio Leite (no. 3474) in wet places and fields, Campos do Jordão, at an elevation of 1600 meters, São

Paulo, Brazil, in April, 1945, and is deposited in his herbarium at Novo Friburgo, Rio de Janeiro, Brazil. The conspicuous disks beneath the ovary, which remain in the axils of the reflexed bractlets after the fruiting-calyx and fruit have been shed, render this species most remarkable and show its relationship to V. thymoides Cham.

The species has been collected in wet and grassy places, fields, and low woods, on campos, and on rocky slopes, at altitudes of 750 to 1821 meters, blooming in January, April, and September to November. Rambo found it "in campo alte graminoso sub-humido", while Leite says "very rare, near wet places". The type of V. pusilla was collected by Gösta Jönsson (no. 1010a) in grassy places at Itaperussu, Paraná, Brazil, on September 27, 1914, and is deposited in the herbarium of the Naturhistoriska Riksmuseum at Stockholm.

In all, 28 herbarium specimens, including the types of both names involved, and 4 mounted photographs have been examined by me.

Citations: BRAZIL: Paraná: Dusén 7138 (N, S); Jönsson 1010a (S). Rio Grande do Sul: Rambo 36410 (F--photo, N, N, N--photo, S, Sg--photo, Z--photo). Santa Catarina: F. Müller 93 (Ja--46531, N); Reitz & Klein 4868 (N, Ok, W--2268943), 5193 (Ok, S, W--2268975), 5422 (Ok, W--2269003); Smith & Reitz 10360 (W--2249371), 10382 (Ok, W--2251674), 10385 (W--2249372), 10478 (W--2249373), 10489 (W--2249374); Smith, Reitz, & Klein 7663 (W--2251305, Z). São Paulo: Leite 3474 (El--type, N--isotype), s.n. [Campos do Jordão, I-1949] (N, W--1953453).

xVERBENA KONDAI Moldenke, *Phytologia* 2: 148. 1946.

Synonymy: Verbena racemosa x erinoides Dermen, *Cytologia* 7: 163, fig. 8, & 170. 1936. Verbena racemosa x erinoides alba Dermen, *Cytologia* 7: 170. 1936. Verbena racemosa x laciniata Dermen ex Moldenke, *Am. Midl. Nat.* 59: 354, in syn. 1958. Verbena racemosa Eggert x V. tenuisecta Briq. ex Moldenke, *Résumé* 373, in syn. 1959. Verbena tenuisecta Briq. x V. racemosa Eggert ex Moldenke, *Résumé* 376, in syn. 1959.

Bibliography: Dermen, *Cytologia* 7: 163, fig. 8, & 170. 1936; Moldenke, *Phytologia* 2: 148. 1946; Moldenke, *Alph. List Invalid Names Suppl.* 1: 26. 1947; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 164 & 198. 1949; Moldenke in Chittenden, *Roy. Hort. Soc. Dict. Gard.* 4: 2211. 1951; Moldenke, *Am. Midl. Nat.* 59: 354. 1958; Moldenke, *Résumé* 223, 373, 376, & 472. 1959; Moldenke, *Résumé Suppl.* 3: 40. 1962.

Illustrations: Dermen, *Cytologia* 7: 163, fig. 8. 1936.

This plant is a hybrid between V. racemosa Eggert and V. tenuisecta Briq., produced artificially by Dermen in Massachusetts in 1936, and said to have intermediate characters. The two parental species both grow wild in Texas, the former native and the latter introduced. As yet I have no record of them from the same county,

but V. tenuisecta is spreading very rapidly and it is probably only a matter of time before both will be growing in close proximity to each other. The hybrid may then be expected in the wild. It ought to have considerable horticultural merit.

VERBENA KUNTZEANA Moldenke, *Phytologia* 2: 474--475. 1948.

Synonymy: Verbena megapotamica hybrida Osten ex Moldenke, *Résumé* 369, in syn. 1959.

Bibliography: Moldenke, *Phytologia* 2: 474--475 (1948) and 3: 75, 134, & 136. 1949; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 99, 106, & 198. 1949; H. N. & A. L. Moldenke, *Anal. Inst. Biol. Mex.* 20: 13. 1949; E. J. Salisb., *Ind. Kew. Suppl.* 11: 263. 1953; Moldenke, *Résumé* 110, 118, 127, 369, & 472. 1959; Moldenke, *Résumé Suppl.* 3: 14 (1962) and 7: 5. 1963.

Suffrutescent herb or subshrub, 3--6 dm. tall, several-branched from the base; stems and branches rather slender, obtusely tetragonal, the sides often sulcate, densely hirsutulous-pubescent with widely divergent, grayish-sordid, and mostly gland-tipped hairs, the lower part of the stems often decumbent; nodes annulate; principal internodes 2--5 cm. long; leaves decussate-opposite; petioles rather obscure, broadly winged and merging into the leaf-base; leaf-blades chartaceous, bright-green above, paler beneath, ovate, 2.5--5 cm. long, 1.4--2 cm. wide, acute at the apex, acuminate into the winged petiole at the base, rather coarsely but regularly serrate from the widest part to the apex, the teeth rather broadly triangular, obtuse or subacute, densely hirsutulous-pubescent on both surfaces, the hairs often slightly bulbous-based above; midrib slender, impressed above, prominulous beneath; secondaries slender, 3--5 per side, ascending, impressed above, prominulous beneath; veinlet reticulation plane or subimpressed above, the larger parts subprominulous beneath; inflorescence terminal, subcapitate; peduncles slender, 6--8 cm. long, tetragonal, sulcate, densely glandular-hirsutulous; floriferous portion of the inflorescence about 3.5 cm. long, to 2.5 cm. wide during anthesis; bractlets elongated, linear-lanceolate, 11--13 mm. long, densely glandular-hirsutulous with whitish hairs, often somewhat incurved after the flowers have fallen; rachis densely glandular-hirsutulous; calyx tubular, the tube about 15 mm. long and 2 mm. wide, densely glandular-hirsutulous with whitish hairs, the rim 5-apiculate, the apiculations linear-caudate, unequal, densely glandular-hirsutulous with whitish hairs, the longest ones about 4 mm. long; corolla blue or violet-blue to rose-lilac, its tube 15--20 mm. long, densely short-pubescent on the outside, the limb about 10 mm. wide, minutely puberulent on the outer surface, glabrous within.

The type of this distinct species was collected by Carl Axel Magnus Lindman (no. A.3649) at Paraguarí, Paraguay, in October, 1893, and is deposited in the herbarium of the Naturhistoriska Riksmuseum at Stockholm. The collector notes that the native name for the plant is "flor de vovia". It was first identified

by Briquet as V. paraguariensis var. latiuscula Briq. and then as V. platensis Spreng. It is named in honor of Carl Ernst Otto Kuntze, who did such splendid collecting of Verbenaceae and related groups in Asia, Africa, and America, whose keen insight has detected so many varieties and forms worthy of nomenclatural recognition, and who fought so heroically and eloquently for fair play and honesty in botanical nomenclature, albeit a losing battle.

The species has been collected in fields, campos, wet campos, and on high rocky ground, at 1200 meters altitude, blooming in September, October, and December to March, in fruit in September. Herbarium material has been misidentified and distributed under the names V. megapotamica Spreng., V. phlogiflora Cham., V. platensis Spreng., V. platensis var. latiuscula Briq., and V. platensis var. stenodes Briq. Rojas 3406 was identified by Osten as "Verbena megapotamica Spr. hybrida". The Pedersen 4069, distributed as "Verbena aff. kuntzeana Mold.", is actually V. nana Moldenke.

In all, 27 herbarium specimens, including the types of both names involved, and 6 mounted photographs have been examined by me.

Citations: BRAZIL: Minas Gerais: Widgren s.n. [1845] (Lu). Paraná: Braga 1030 (Z); Braga & Lange 255 (Gg). Santa Catarina: Moreira & Moreira 234 (Gg); Smith & Reitz 10161 (W--2249365). PARAGUAY: Fiebrig 5699 (W--1134886); Hassler 3936 (N), 4428 (N), 5758 (Ca--935082, N), 6357 (N), 6624 (N), 11052 (Bm, Cb, Cb, Cb, N, N--photo, Z--photo); Lindman A.3649 (F--photo of type, N--isotype, N--photo of type, S--type, S--isotype, Si--photo of type, Z--photo of type); T. Rojas 3406 [Herb. Osten 17906] (N, N, Ug), s.n. [Herb. Osten 15638] (N, N, Ug). ARGENTINA: Salta: Schreiter 11467 (N).

VERBENA LACINIATA (L.) Briq., Ann. Conserv. & Jard. Bot. Genève. 7-8: 296--297. 1904 [not V. laciniata Kuntze, 1941, nor Raf., 1833, nor Sessé & Moc., 1940].

Synonymy: Lychnidaea, Verbenae tenuifoliae folio, vulgò Sandia-Laguen Feuill., Journ. Obs. Phys. Côtes Orient. [3]: 35--36. 1725. Lychnidaea Verbenae tenuifoliae, vulgò Sandia Laguen Feuill., Journ. Obs. Phys. Côtes Orient. [3]: pl. 25, [fig. 2]. 1725. Erinus laciniatus L., Sp. Pl., ed. 1, 2: 630. 1753. Lychnidea verbena tenuifoliae folio Feuill. apud L., Sp. Pl., ed. 1, 2: 630, in syn. 1753. Verbena erinoides Lam., Tabl. Encycl. Méth. Bot. [Illustr.] 1: 57. 1791 [not V. erinoides Auth., 1959, nor Chod., 1904, nor Hook., 1934, nor Hook. & Arn., 1959, nor H.B.K., 1963, nor Poepp., 1847, nor Spreng., 1830, nor Willd., 1947]. Verbena multifida Ruiz & Pav., Fl. Peruv. & Chil. 1: 21, pl. 33c. 1798. Erinus (laciniatus), foliis laciniatis L. apud

Poir. in Lam., Encycl. Méth. Bot. 8: 547, in syn. 1808. Lychnidea verbenae tenuifoliae folio, vulgò sandia-laguen Feuill. apud Poir. in Lam., Encycl. Méth. Bot. 8: 547, in syn. 1808. Verbena (multifida), tetrandra, floribus capitato-umbellatis; foliis semitrifidis, laciniis bi trifidis Ruiz & Pav. apud Poir. in Lam., Encycl. Méth. Bot. 8: 547, in syn. 1808. Verbena spicis solitariis, corollarum laciniis emarginatis; foliis laciniatis, subsessilibus Lam. apud Poir., Encycl. Méth. Bot. 8: 547, in syn. 1808. Verbena selloi Spreng. in L., Syst. Veg., ed. 16, 2: 750. 1825. Verbena odorata Meyen, Reise 1: 480--481. 1834 [not V. odorata Desf., 1821, nor L'Hér., 1941]. Lychnidea verbenae tenuifoliae folio, vulgò Sandia Laguen Feuill. apud Lindl. in Edwards, Bot. Reg., 21: pl. 1766, in syn. 1835. Verbena erinoides L. ex Walp., Nova Act. Acad. Nat. Caes. Leopold.-Carol. Cur. 19: Suppl. 1: 379. 1843 [not V. erinoides L. ex Lorentz & Niederlein, 1881]. Shuttleworthia selloi (Spreng.) Walp., Repert. Bot. Syst. 4: 13. 1845. Lychnidea Verbenae tenuifoliae folia Feuill. apud Walp., Repert. Bot. Syst. 4: 31, in syn. 1845. Shuttleworthia selloi Walp. apud Schau. in A. DC., Prodr. 11: 553, in syn. 1847. Lychnidea etc. Feuill. apud Schau. in A. DC., Prodr. 11: 553, in syn. 1847. Verbena erinoides Lam. apud C. Gay, Hist. Fis. Chile Bot. 5: 10. 1849. Verbena erinoides  $\beta$  prostrata C. Gay, Hist. Fis. Chile Bot. 5: 10. 1849. Lychnidea verbenae tenuifoliae folio, vulgò Sandia-Laguen Feuill. apud Schau. in Mart., Fl. Bras. 9: 194--195, in syn. 1851. Verbena pulcherrima Vilm., Fleurs Pl. Terre, ed. 1, 937. 1865. Verbena multifida Hort. ex Regel, Gartenfl. 28: 372--373, in syn. 1879. Verbena erinoides var. multifida Ruiz & Pav. ex C. Ludwig, Wien. Ill. Gart.-Zeit. 20: 443. 1895. Shuttleworthia selloi Walp. ex Jacks. in Hook. f. & Jacks., Ind. Kew. 2: 895, in syn. 1895. Verbena pulcherrima Haage & Schmidt, Cat. Général 1898: 93. 1898. Verbena geraniifolia Haage & Schmidt, Cat. Général 1898: 93, in syn. 1898. Verbena crinoides Lam. ex Briq. in Chod. & Hassler, Bull. Herb. Boiss., sér. 2, 4: 1059, sphalm. 1904. Schuttleworthia selloi Walp. ex Briq., Ann. Conserv. & Jard. Bot. Genève. 7-8: 296, in syn. 1904. Lychnidea Feuill. ex Reiche, Fl. Chile 5: 294, in syn. 1907. Verbena laciniata Briq. ex Prain, Ind. Kew. Suppl. 3: 187. 1908. Glandularia laciniata (L.) Schnack & Covas, Darwiniana 6: 475. 1944. Verbena odorata Meyer ex Augusto, Fl. Rio Grande do Sul 233, sphalm. 1946. Verbena glandularia Jørgensen ex Moldenke, Alph. List Invalid Names Suppl. 1: 24, in syn. 1947. Verbena multifida Pavon ex Moldenke, Alph. List Invalid Names Suppl. 1: 25, in syn. 1947. Lychnidea veronicae tenuifoliae folia, vulgò Sandia-Laguen Feuill. ex Moldenke, Résumé 318, in syn. 1959. Verbena erinoides var. laciniata (L.) Briq. ex Moldenke, Résumé 364, in syn. 1959. Lychnidea, Ver-

benae tenuifoliae folio, vulgò Sandia-Laguen Feuill. ex Moldenke, Résumé Suppl. 2: 9, in syn. 1960.

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Illustrations: Feuill., Journ. Obs. Phys. Côtes Orient. [3]: pl. 25, fig. 1. 1725; Ruiz & Pav., Fl. Peruv. & Chil. 1: pl. 33c. 1798; Mirbel, Ann. Mus. Hist. Nat. Paris 15: pl. 14 (2), fig. 3. 1810; Réveil, Règne Vég. 4: pl. 18 [in color]. 1870; C. Ludwig, Wien. Ill. Gart.-Zeit. 20: 442, fig. 49. 1895; Lo Spigolatore, Bull. Soc. Tosc.ortic. 22: 77, fig. 14. 1897; Ed. Rodigas, Bull. Arboricult. Belg. 1902: 113, fig. 4. 1902; Sanzin, Anal. Soc. Ci-ent. Argent. Buenos Aires 88: 130. 1919; Hegi, Illustr. Fl. Mittel-Eur. 5 (3): 2239, fig. 3172. 1927; Junell, Symb. Bot. Upsal. 4: fig. 23. 1934; Dermen, Cytologia 7: 163, fig. 6. 1936; Schnack & Covas, Darwiniana 6: 472, fig. 1 A--D, & 473, fig. 2 B (1944) and 7: pl. 1 D--F, 3 A, & 5 A--G. 1945; Schnack & Solbrig, Revist. Fac. Agron. La Plata 29: 255--266, fig. 1 A & B, Fig. 3 A & B, & fig. 4 A & G. 1953.

Low annual or perennial, very polymorphic herb, decumbent or prostrate, suffrutescent at the base, forming mats to 1 m. in diameter; stems prostrate or creeping, wiry, radiating from a tap-root and central root-crown, usually to about 30 cm. long, rooting at the nodes, much branched, strigose-hirtous or subhirsute, more or less cinerescent; branches short and erect or ascending or else elongate-decumbent and rooting, very sparsely puberulent-pilosulous; leaves decussate-opposite, crowded or remote, inclined to be pale-green or grayish, very viscid when fresh [according to Sandeman], the blades 1.5--2.3 cm. long, pinnatifid-laciniate to deeply pinnatisect or the upper ones 3-parted, strigose or strigillose on both surfaces, more densely so on the venation beneath, cuneate at the base and decurrent into the petiole, the segments ovate-oblong or oblong-lanceolate to lanceolate or linear, acute or subacute to obtuse at the apex, entire to subdentate or dentate along the margins and there slightly revolute; spikes lateral and terminal, small, usually fascicle-like or in close flattened heads to 5 cm. wide, somewhat elongating after anthesis, pedunculate, many-flowered, fastigiate, solitary or ternate, canescent-hirtous; bractlets lanceolate, from one-half to two-thirds as long as the calyx or subequaling it, acuminate

at the apex, patulous or subpatulous, glabrous except for the long-ciliate margins; flowers odorless or fragrant and sweet-smelling with the odor of vanilla; calyx narrow-prismatic, 5--8 mm. long, green, lightly pubescent on the outside, the rim 5-toothed, the teeth linear-acute or subulate-aristate, very unequal, the lower ones longer; corolla hypocrateriform, medium in size, short-exserted, varying from blue, bluish, bluish-purple, pinkish-blue, or pale rose-blue to violet, pale-violet, bluish-violet, pale lilac-violet, light to rather dark reddish-violet, red-violet, lilac, lilac-purple, pale-lavender, or lavender, sometimes pale-rose [Osten 3523], rose, or red ["coloradas"] to clear-mauve, light vinaceous-gray, or even white [Raimondi 2900, 10694, 10712, Ruiz Leal 1284], its tube about 10 mm. long, slightly longer than the calyx, glabrous on the outside, barbate at the insertion of the stamens within, the limb about 8 mm. wide, the lobes cuneate, emarginate at the apex; anther appendages on the connectives of the upper anthers, very small, subbarbate, much smaller than the anther itself but still manifest, included or slightly exserted; fruiting-calyx turgid, slightly contorted above; fruit included by the mature fruiting-calyx, about 3 mm. long; cocci subterete, obtuse at the apex, alveolate, striate on the dorsal surface, reticulate-areolate above the middle, the commissural surface narrow, white-strigillose; chromosome number:  $2n = 10$ .

This is an extremely poorly understood species. Whether the specific epithet "laciniata" really belongs here, or not, is not even certain. Some authors maintain that it belongs to the taxon now passing as V. berterii (Meisn.) Spreng. Linnaeus' original description is: "laciniatus ERINUS foliis laciniatis. Lychnidea verbena tenuifoliae folio Few. peruv. 3. p. 35. t. 25." The binomial, V. erinoides, has also been widely misinterpreted; Cory (1937) used it for V. tenuisecta Briq. In the horticultural trade it is applied to various species, including V. berterii, V. dissecta, and V. tenuisecta.

The V. laciniata of Kuntze is actually V. dissecta Willd., of Rafinesque is xV. perriana Moldenke, and of Sessé & Mocino is Bouchea prismatica var. laciniata Grenz. Verbena erinoides Auth. is a synonym of V. dissecta; that of Hooker, Hooker & Arnott, Linnaeus [ex Lorentz & Niederlein], Poeppig, and Sprengel are V. berterii; that of H.B.K. and of Willdenow are V. ciliata; and that of Chodat is in part V. calliantha and in part V. storeoclada. The name, V. erinoides Chod., is given by me in Lundell, Fl. Texas (1942) and the spelling "V. crinoides Lam." in various publications, by error as synonyms of V. tenuisecta. Verbena geraniaefolia Hort. is a synonym of V. tenera Spreng.; V. odorata Desf. is Lippia javanica (Burm. f.) Spreng., while V. odorata L'Hér. is Lippia alba (Mill.) N. E. Br. The Lychnidea names of Feuillée are sometimes regarded as synonyms of V. berterii, as,

for instance, by me in my *Résumé Suppl.* 2 (1960), but actually are the basis of Linnaeus' *Erinus laciniatus* and therefore must go wherever Linnaeus' name goes. But whether Feuillée's plant actually was what is now passing as *V. laciniata* or was actually what is now called *V. berterii* is not yet certain. Alcibiades Santa Cruz, however, in 1938 reports that at Talca, Chile, our plant is still called "sandia lahuen", as was the plant of Feuillée. It would seem best, therefore, to keep the nomenclature as it is now accepted. The type is said to be from Peru -- "Habitat in Perú" -- by some authors, but Feuillée states that it came from Chile.

The color plate by Boynton in *Addisonia* 7: pl. 230 (1922), labeled as *V. erinoides* actually represented *V. tenuisecta* Briq., as does also the color plate in Everett's work (1960) labeled as *V. laciniata*. Some of the other illustrations cited above may also be *V. tenuisecta* -- one cannot always be certain from the characters shown on small illustrations.

The type of *V. pulcherrima* and *V. geraniifolia* is Haage & Schmidt 5921, taken from material cultivated at Erfurt, Germany. Vilmorin's *V. pulcherrima* seems to be nothing more than a new name for *V. erinoides* Lam., with which Vilmorin admits that his plant is conspecific. Walpers (1845) reduces *Lychnidea Verbenae tenuifoliae folio* Feuill. and *Erinus laciniatus* L. to synonymy under *V. aubletia* L., but such a disposition of these names is manifestly absurd. Johnston (1929) affirms that the *V. erinoides* of Philippi (1860) is actually *V. atacamensis* Reiche. The "*V. laciniata* sens. lat." of Johnston actually includes *V. aristigera* S. Moore, *V. berterii* (Meisn.) Schau., and *V. dissecta* Willd., while that of P. C. Standley includes *V. cochabambensis* Moldenke and *V. fasciculata* Benth., species that have nothing whatever to do with this complex. Hayek (1908) says "*Verbena erinoides* Lam., Ill., I. p. 17 (1791), ist wahrscheinlich identisch mit *Verbena Berterii* (Meisner) Schauer, da ja der Autor die Pflanze aus Peru anführt. Es scheint daher zweckmäßiger, die südbrasilianische Pflanze as *Verbena Selloi* Spreng. zu bezeichnen." Schauer (1851) says "*Planta brasiliensis* ab hortensi annua differt caulis indumento breviori magisque hirto neque piloso-hirsuto, bracteis calyce duplo brevioribus, corollis minoribus." Sanzin (1919) claims that *V. mendocina* R. A. Phil. is conspecific with what he calls *V. erinoides*. He states that its characters, as seen by him on Philippi's original material, are intermediate between *V. erinoides* and his *V. erinoides* var. *glandulifera* [now known as *V. dissecta* f. *glandulifera* (Sanzin) Moldenke]. It seems probable that Sanzin's *V. erinoides* is actually *V. dissecta*. Neal (1948) reduces *V. erinoides* to *V. pulchella* Sweet, but the plants to which she refers (examined by me) are actually *V. tenuisecta*. Regel (1879) places *V. multifida* Hort. (as well as *V. sabini* Hort.

and V. tenera Spreng.) in the synonymy of V. pulchella.

Ruiz & Pavon's V. multifida seems to be nothing more than a new name for Erinus laciniatus L., which they cite as a synonym. They also cite the common name "sandia-laguen", but the specimen which they illustrate came from Concepcion, Chile. The "Index Kewensis" reduces their name to V. erinoides Lam. Sandeman 103, cited hereinafter by me as V. occulta f. alba Moldenke, is a perfect match for their illustration and was collected at an altitude of 11,000 feet at Tarma, Junin, Peru, in June of 1938. It is described as a low-growing herb, with very viscid leaves and white flowers, growing in full exposure to the sun on a mountainside.

Briquet (1904) has the following to say: "On a souvent confondu avec les V. tenuisecta, dissecta et tenera une espèce voisine, la V. laciniata (L.) Briq. à laquelle nous croyons utile de consacrer les notes suivantes:..... Cette espèce a été basée par Linné sur une plante décrite sous le nom de Lychnidea, etc. dans le Journal de Observations physiques, etc. de Feuillée (III, 35 et 36) et figurée sur la planche XXV, fig. 1. Au sujet de la partie de cette plante, l'auteur dit: 'Je trouvai cette plante dans les campagnes du royaume de Chily, à 38 degrés 28 minutes de hauteur du Pôle austral.' La figure représente très exactement le port d'une verveine à corolle de couleur incarnat assez commune au Chili et qui diffère totalement des V. tenuisecta et V. tenera par ses feuilles cuneiformes à la base, pinnatifidées, à segments bien plus larges. Feuillée dit la tige 'parsemée d'un petit velu blanchâtre qui rend sa couleur d'un vert blanchâtre.' Cette tige est en effet complètement hérissée de poils étalés bien plus denses encore que dans le V. dissecta, tandis que les V. tenuisecta et tenera ont un indument apprimé. Le calice est anguleux, à angles saillants entièrement hérissé de poils étalés mélangés avec des glandes stipitées plus ou moins abondantes. Les dents calicinales, conniventes à la fin, sont courtes et triangulaires-lanceolées. Nous ne connaissons cette espèce - impossible à confondre avec celles des plaines transandines lorsqu'on l'a comprise - que du Chili (nombreuses provenances in h. Delessert) et du Pérou (Bonpland in h. DC.). Elle est indiquée, il est vrai, par Schauer dans le Brésil méridional en général, et en particulier, dans l'État du Minas-Geraes, mais nous nous demandons si ces indications ne sont pas dues à des confusions?" It is probable that Briquet's confusion stems in part from a variant numbering of the sketches in Feuillée's work -- V. laciniata is figure 2 on plate 25; V. peruviana (which Briquet's description fits very well) is figure 3.

Walpers (1845) describes five varieties of V. erinoides, but fails to give them nomenclatural designation: "α Foliis ovato-lanceolatis inciso-serratis vix trifidis; β Foliis profunde trifidis subtripartitisve, laciniis incisis, ultimis ovatis lanceolatisve (Rz. et Pav.) -- [Poepp. Coll. pl. Chil. no. 159!]; γ Foliis tripartitis, laciniis inciso-pinnatifidis, ultimis linearibus oblongis acutis. -- V. multifida β. contracta Bot. Regist. t.

1766. — V. Sabini Hort. — Sweet, Brit. flow. gard. (2 Ser.) IV. t. 347;  $\zeta$  Foliis bipinnatifidis, segmentis paucis linearibus elongatis vel etiam foliorum segmentis anguste linearibus;  $\xi$  Foliis bipinnatifidis, segmentis linearibus brevibus, bracteis plerumque calce longioribus. -- An specie diversa? -- Crescit in Chili, Peruvia, in Mexico (foliorum laciniis acuminatis) et in Brasilia meridionali." His third variety is discussed by me under V. laciniata var. contracta (Lindl.) Moldenke. The Mexican plants to which he refers are certainly not conspecific with the rest of the material and are probably V. teucრიifolia Mart. & Gal.

Briquet (1904) says "Schauer a rattaché dubitativement au V. laciniata (V. erinoides) deux plantes qui en sont probablement différentes: les V. Selloi Spreng. (Schuttleworthia Selloi Walp.) et V. Sabini Sweet. -- Le V. Selloi est décrit par Sprengel (Syst. veg. II, 750) comme ayant des tiges hispides, des fascicules floraux pédonculés hirsutes et des segments foliaires linéaires aigues très entiers. Ces indications, en particulier les dernières, ne cadrent pas avec le V. laciniata: elles s'appliqueraient mieux au V. dissecta. Mais Walpers attribue à la plante de Sellow des corolles deux fois plus courtes que le calice (op. cit. p. 13)! Ce caractère, qui ne se retrouve dans aucune autre espèce de la section, achève de rendre le V. Selloi entièrement obscur: c'est un type qui ne pourra être élucidé que par l'examen des originaux."

Gay (1849) lists two varieties of his V. erinoides, which he distinguishes as follows: " $\alpha$  erecta -- ramis plus minus abbreviatis; foliis confertis.....  $\beta$  prostrata -- ramis elongato-repentibus, debilibus; foliis remotis, superioribus tripartitis; spicis saepe ternatis." The first of these is probably what is now called V. laciniata var. contracta (Lindl.) Moldenke.

Verbena laciniata has been found by collectors on the interandine highlands and sandy fields, on open hillsides and puna, in full exposure to the sun on mountainsides, on sandy plains, on grassy northwestern slopes, in sandy places and stony open places, on dry pampas and open rocky slopes, in dry and gravelly ground, in sandy and volcanic soil, on dry or dry desert slopes, and in the Opuntia-Baccharis zone, at altitudes of 1165 to 4350 meters, blooming in every month of the year, and fruiting in January, April to June, August, September, and November. Common and vernacular names reported for it are "cutleaf verbena", "Erinus-like vervain", "mamitac ttocaynin", "margarita morada", "moss verbena", "piedra quaranga", "porque es rastrera", "prettiest vervain", "sandia-laguen", "sandia-lahuen", "sandia lahuen", "Santa Lucia", "schönstes Eisenkraut", "verbena", "verbena a la roja", "verbena azul", "verbene quaranga", "verveine á fleur d'Erine", "verveine à porte d'Erine", "verveine élégante", "verveine erinoïde", "verveine érinoïde", "yerba del incordio", and "yerba meona". "Moss verbena" is the name recommended by "Standardized Plant Names".

Herbarium material has been abundantly misidentified and dis-

tributed under such names as V. aubletia L., V. berterii (Meisn.) Schau., V. chamaedryfolia x erinoides Osten, V. crinoides Lam., V. diffusa Willd., V. dissecta Willd., "V. nr. elegans", V. erinoides Hook., V. erinoides L., V. inflata H.B.K. [by I. M. Johnston!], and V. microphylla H.B.K.

On the other hand, the Herb. Mus. Bot. Berol. s.n. [1840] and Lorentz 1053, distributed as V. laciniata or one of its synonyms, are actually V. aristigera S. Moore; Buchtien s.n. [8.IX.1895], Miers s.n., and R. A. Philippi 1298 are V. berterii (Meisn.) Schau.; Galeotti 736 is V. ciliata Benth.; Venturi 4, 1930, 2303, 2838, 3579, & 5264 are V. dissecta Willd.; Hieronimus s.n. [4.XI.1876] is V. glandulifera Moldenke; Venturi 2898, 4063, 4607, & 8356 are V. lilloana Moldenke; Cook & Gilbert 549 and F. L. Herrera s.n. [Cuzco, July 1923] are V. microphylla H.B.K.; Safford s.n. [Independencia, Oct. 24, 1886] is V. pulchella Sweet; Claude-Joseph 2177, W. H. Harvey s.n. [Coquimbo, July--August 1856], and Morong 46 & 1126 are V. sulphurea D. Don; Ruiz Leal 3419 & 4258, 1284, 3627, & 5130 are V. sulphurea var. intermedia Kuntze; H. H. Bartlett 19862, Berro 4323, Herb. Herter 79174, Herter & Strahl 181, Jørgensen 1737, Osorio 199, Osten 2748, Rosa Mato 322, and Wilkes s.n. [Rio Negro, Patagonia] are V. tenera Spreng.; Archer 4609, L. H. Bailey s.n. [Aug. 4, 1922], s.n. [Aug. 10, 1924], s.n. [July 23, 1925], s.n. [Aug. 7, 1925], & s.n. [Cambridge, August 6--12, 1929], Bailey & Bailey 7737, H. H. Bartlett 19862, Brinkman 744, Britton, Britton, & Boynton 8296, Burdick 24, Castellanos s.n. [Valle de los Reartes, Dec. 15, 1919], Garnier 615, J. G. Gilmore 1792, Goode 145, Hartling s.n. [N. Y. Bot. Gard. Cult. Pl. 42722], Herb. Meisner s.n. [20 Jul. 1837], Herb. Osten 13675, 15290, & 20415, Herter s.n. [Paysandú, Sept.--Oct. 1907], Jørgen 2470, Jørgensen 2465, Marcus 1962, McCann s.n. [9-15-36], H. N. Moldenke 1084a, N. Y. Bot. Gard. Cult. Pl. 42722, Parks & Cory 22734 & 22735, Pastore & Troncoso 984, P. O. Schaller 251 & s.n. [April 29, 1941], Small, Mosier, & Matthaus 12778, E. C. Stewart 683, Teas s.n. [Houston, June 1926], Teis-eire s.n. [Colonia, 1913], R. E. Torrey s.n. [Amherst, Aug. 4, 1942], and Valeur 448 are V. tenuisecta Briq.; Venturi 2651 is V. tomophylla Briq.; and Venturi 949 & 3677 are V. venturii Moldenke.

Balls reports that the species makes "loose mats to several feet across where plants intertwine, growing chiefly among thin turf and against rocks on dry open slopes in poor rocky sandy soil." Steyermark describes it as having "stems hanging down clay banks". Ragonese & Covas (1947) describes it as a "Hierba perenne, de flores violáceas, común en los terraplenes de los caminos, baldíos, cultivos, etc." Jørgensen says that it is abundant at La Ollada. Cabrera (1945) says "Hierba perenne, con

tallos rastreros y hojas profundamente bipinnatisectas, con segmentos lineales. Flores azules, dispuestas en espigas cortas en el extremo de los tallos. Vive en la América Austral. Común en la estepa climax." Gay (1849) comments "Especie muy comun en los cerros de la Republica [Chile] y usada como aperitiva, diuretica y emenagoga; se emplea igualmente para apaciguar el ardor de la orina y para purgaciones. Sus hojas menos profundamente partidas y con lobulos anchos y muy cortos lo mismo las bracteas la distinguen muy bien de sus congeneres."

Reiche (1910) emphasizes the fact that the bractlets are "la mitad tan largas como el cáliz" and "los apéndices de las anteras muy cortos e inclusos en el tubo." He asks "En V. multifida..... las anteras se han dibujado sin apéndices, por omision?" As to its distribution, he says "Planta del Perú, Bresil, de la Argentina i de Chile; aquí desde el Norte hasta la Araucanía; tambien en las cordilleras bajas. V. multifida fué descrito de Concepcion."

Haage & Schmidt (1898) describe their V. erinoides — based on their no. 5919 — as "purpurviolett, reichblühend," while Park (1963) describes it as "12 inches [tall?]", with purple flowers, and offers 100 seeds for 25 cents, 200 for 45 cents. Mattoon (1958) tells us that the species is offered to the horticultural trade by Vaughan's (New York & Chicago), Sutton & Sons (Reading), Thompson & Morgan, Pearce (Moorestown, New Jersey), and Saier (Dimondale, Michigan).

Covas & Schnack (1945) discuss the length of the pistil in relation to the size of the pollen-grains. Peck (1937) offers "Violet", "White", and "Mixed" varieties to the trade, and calls the species "moss verbena". In 1962 his price was 100 seeds for 25 cents (his no. 2062). West reports that his no. 8115 had "flowers white to lilac-purple". Schauer in A.DC., Prodr. 11: 555 (1847) says that V. teucrifolia Mart. & Gal. is related to this plant "sed glabritie foliisque minoribus minus laciniatis mox tamen profunde incisus diversa", while on page 554 of the same work he says that V. elegans H.B.K. "V. erinoidis quodammodo accedens, sed corolla magna jam satis distincta." The specific epithets of V. erinoides and V. selloi are often upper-cased.

Walpers (1845) places this species in his Section Verbenaca, Subsection Inermes, Group Foliosae, Subgroup Macranthae, and Secondary Subgroup Aubletia with 10 other species. Perry (1933) places it in her list of "Doubtful or Little-Known Species" and says "This species has established itself in several places [in the United States]. It belongs to a South American species-complex needing critical study to determine accurately its real identity". The plant to which she refers is V. tenuisecta Briq., not V. laciniata.

The Hicken, Sert. And. 65 reference given above is often dated "1922", but as far as I am able to determine is more correctly dated 1923. The Loud., Hort. Brit. Suppl. 2: 680 (1839) reference cited above is often credited to W. Baxter, apparently in



error. The Feuill., Journ. Obs. Phys. Côtes Orient. (1725) reference mentioned several times on preceding pages is cited by Schauer (1851) as "Feuill. Hist. Peruv. Chil." and by Linnaeus (1753) as "Few. peruv." The original publication for Erinus laciniatus is sometimes given as page "879" in error, while Poiret gives it as "Sp. Pl. 3. 177". The Bot. Reg. 21 reference is sometimes misdated "1836".

The Weydahl 160 collection, cited below, may have come from either Cotopaxi or Pichincha, Ecuador, as the locality of collection lies directly on the border between these two provinces. Osten identified his no. 3523 as V. chamaedryfolia x erinoides and affirms that he found it growing among these two species. He notes that it had large pale-rose flowers. Most of his other collections so determined by him are cited by me under V. dissecta.

In Offic. Org. Malayan Agri-Horticult. Assoc. Kuala Lumpur (1940) V. laciniata is said to be cultivated in Malaya. Troncoso (1937) says "La he visto con mucha frecuencia en los jardines y parques de la Capital y alrededores.....Según SCHAUER, ...esta especie es anual, carácter en que difieren los ejemplares que he podido observar en cultivo. Por esta razón, bien podría tratarse de V. tenera SPR., especie muy afín a la anterior, y que dado lo sintético de las diagnosis originales me ha sido imposible diferenciarlas. Problema que me queda por resolver."

Hegi (1927) says of the plant to which he applies the name V. erinoides: "soll die Menstrationen fördern."

Schauer (1847) cites collections of Martius, Riedel, and Sellow from Minas Gerais, Brazil, and Bonpland and Meyen collections from Peru. In his 1851 work he cites a Sellow collection from Rio Grande do Sul, Riedel from São Paulo, and Martius from Minas Gerais. Walpers (1843) cites Herb. Willdenow 11137 and Poeppig 159 and affirms that the species grows at Lake Titicaca, Peru. The "Bot. Reg. t. 1766" which he cites is actually var. contracta (Lindl.) Moldenke. Hayek (1908) cites Wacket and Wettstein & Schiffner collections from São Paulo; Herrera (1941) cites his nos. 18 and 3442 and Hicken s.n. [1903] from Cuzco; Raimondi (1943) cites his 10703 from Arequipa, 10712 and 10757 from An-cash, 7373 from Cajamarca, and 2900 and 10694 from Province unde-termined, Peru; Cabrera (1945) cites his no. 7948; Augusto (1946) cites a Sellow collection from Perto de S. Inácio, Rio Grande do Sul, Herter s.n. from Uruguay, and Augusto & Edésio s.n. from Bananeiras. Ragonese & Covas (1947) cite Rosetti, Covas, & Rago-nese 3795. Lorentz & Niederlein (1881) cite a "V. laciniata L." from Río Negro, Argentina, which may apply to this species or to V. berterii (Meisn.) Schau. Acevedo de Vargas (1951) cites the following Chilean specimens: Santiago: Collector undesignated s.n. [X.1882] (Sg--42469, Sg--68404); Looser 4222 (Sg--67501); R. A. Philippi s.n. [XI.1855] (Sg--54760). Llay-lLAY: Collector un-designated s.n. [IX.1863] (Sg--68405). Valparaíso: Collector un-designated s.n. (Sg--68406); Germain s.n. [Quillota] (Sg--54754).

Antofagasta: Collector undesignated s.n. [Paposo] (Sg--42476).  
Santiago: Collector undesignated s.n. [Salto de Conchali, 1976]  
(Sg--54737).

Covas & Schnack (1944) distinguish V. laciniata from some of its closest relatives as follows:

1. Stems erect or suberect, not creeping.
2. Entire plant covered by a dense pubescence of mixed simple and glanduliferous hairs; leaves tripartite-pinnatilobate...  
V. perakii.
- 2a. Entire plant covered by a sparse pubescence composed only of simple hairs; leaves pinnatisect.....V. mendocina.
- 1a. Stems creeping, rooting at the base and ascending at the tips.
3. Mericarps 2 mm. long.
4. Bractlets one-third as long as the calyx; spikes not elongating after anthesis.....V. dissecta.
- 4a. Bractlets more than one-half as long as the calyx; spikes elongating after anthesis.....V. santiaguensis.
- 3a. Mericarps more than 3 mm. long.
5. Corolla glabrous outside; glandular anther-appendages sub-cylindric, scarcely visible from the outside or included; pubescence composed of hairs appressed to the epidermis...  
V. laciniata.
- 5a. Corolla pubescent outside; glandular anther-appendages much compressed, plainly exerted; pubescence composed of erect or oblique hairs.....V. parodi.

Rümpel (1873) says of V. laciniata: "Brasilien. -- Einjährig. -- Steifhaarige, stark verzweigte Pflanze mit liegenden, später aufrechten, gegen 30--50 Centimeter hohen Aesten. Blätter gegenständig, am Grunde keilförmig, dreitheilig oder doppelt-halbgefiedert, mit linienförmigen, spitzen, ganzrandigen oder kaum gezähnten Lappen. Blumen violettroth, in wenig verlängerten doldenförmigen Aehren; Kelch mit pfriemlichen Zipfeln, welche länger sind, als das den Kelch begleitende Deckblättchen; Blumenkrone mit ausgerandeten Lappen. Diese Art wirt gleich der Art Nr. 1 [V. canadensis] kultiviert: ihre Blumen sind sehr zahlreich und erscheinen von Juni bis Oktober in reicher Folge. Sie ist hauptsächlich zur Bildung kleiner Gruppen und zur Ausstattung der Rabatten geeignet."

In all, 97 herbarium specimens, including the types of some of the names involved, have been examined by me.

Citations: ECUADOR: Azuay: Steyermark 53729 (N). Chimborazo: Asplund 6862 (Lu, S, W--1930933), 20463 (S); Fagerlind & Wibom 799 (Lu, S), 837 (S); Hartweg 1351 (Lu, N); Mille 40 (N, W--1121424, W--1188646); Penland & Summers 466 (N); Rimbach 175 (W--1544715), 423 (Mi, N, S); Rose & Rose 22312 (N, W--1021979). Cotopaxi: Weydahl 160 (S). Pichincha: I. Holmgren 967 (Gg--354867, S, W--2059951). Tunguragua: Asplund 20147 (S); Böcher, Hjerting, & Rahn 97 (S); A. S. Hitchcock 21739 (N, W--1196493); F. C. Lehmann 112 (Bm, W--1323146); Pachano 155 (W--1044636);

Steyermark 54853 (N, S, W--1901701). Province undetermined: André 3609 [Alto de Guailabamba] (N); Spruce 5065 [In Andibus Ecuadorensibus] (Lu, N). PERU: Ancash: Ferreyra 7333 (Ss). Arequipa: Ellenberg 182 (Ut--115386b). Ayacucho: Ferreyra 7216 (W--2028320). Huancavelica: Rauh & Hirsch P.375 (Z). Junin: Macbride & Featherstone 1260 (W--1474584); R. W. Pearce s.n. [Palca] (Bm). La Libertad: López Miranda 1544 (S); J. West 8115 (Ca--565221). Lima: Asplund 11322 (Gg--403668, S, W--2224408); J. Ball s.n. [Chicla, April 21, 1882] (C, W--1323080); Diers 962 (Ko); Ferreyra 6502 (N); Killip & Smith 21619 (N, W--1356780), 21754 (N, S, W--1356893); Macbride & Featherstone 678 (N, N, W--1830560). Puno: P. Aguilar F.2 (Ok). Department undetermined: Mathews 1048 [Peruvia interiore] (Bm, M). BRAZIL: Rio Grande do Sul: A. R. Schultz 701 (N). State undetermined: Sellow s.n. [Brasilia] (Br). BOLIVIA: La Paz: Buchtien 758 (V). Oruro: Hammarlund 123 (N, S); Kuntze s.n. [Oruro, 14/3/92] (W--702211). Province undetermined: Julio 133 [La Granja] (W--1192719). URUGUAY: Osten 3235 (Ug), 3523 (Ug), 8723 (Ug), 8726 (Ug). CHILE: Bio-Bio: Pfister 2177 (N). Concepcion: Barros Valenzuela 876 (N); Junge 971 [Looser 4030] (N), 1805 (Ba). O'Higgins: F. W. Pennell 12237 (N). Santiago: Alcibiades Santa Cruz s.n. [circa mons Caracol, X.1934] (Ba); Looser 4032 (N). Talca: Alcibiades Santa Cruz s.n. [1938] (Ba). Valparaiso: Garaventa 2672 [Looser 4023] (N); Gillies s.n. (T); Looser 4031 (N). Province undetermined: Dusén s.n. [ad Lotam urbem, 10.X. 1896] (Lu); C. Gay 792 (N); Herb. Gray s.n. [Talcaraque] (C); Herb. Mus. Nac. Santiago 1 [Condes] (N). ARGENTINA: Jujuy: Balls 5984 (W--1777774). Mendoza: Rufz Leal 13812 bis (Rl); Sanzin s.n. [Rufz Leal 1413] (N). Salta: T. Meyer 12088 (Gg--353269, N). Tucumán: Schreiter s.n. [Cumbre Alta; Herb. Osten 72196] (Ug). CULTIVATED: New York: R. H. Ward s.n. [Troy, July 1868] (Ur). LOCALITY OF COLLECTION UNDETERMINED: Collector undesignated 10 (N).

VERBENA LACINIATA var. CONTRACTA (Lindl.) Moldenke, Phytologia 3: 426. 1951.

Synonymy: Verbena multifida var. contracta Lindl. in Edwards, Bot. Reg. 21: pl. 1766. 1835. Verbena erinoides Willd. apud Spreng. in L., Syst. Veg., ed. 16, 2: 750. 1825 [not V. erinoides Auth., 1959, nor Hook., 1934, nor Hook. & Arn., 1959, nor L., 1959, nor Lam., 1791, nor Poepp., 1847, nor Spreng., 1830]. Verbena erinoides Willd. ex Lindl. in Edwards, Bot. Reg. 21: pl. 1766, in textu. 1835. Verbena multifida  $\beta$  contracta Lindl. ex Sweet, Brit. Fl. Gard. 7 [ser. 2, 4]: pl. 347. 1836. Verbena erinoides  $\beta$  contracta Schau. in A. DC., Prodr. 11: 553. 1847. Verbena erinoides  $\alpha$  erecta C. Gay, Hist. Fis. Chile Bot. 5: 10. 1849.

Bibliography: Lindl. in Edwards, Bot. Reg. 21: pl. 1766. 1835; Sweet, Brit. Fl. Gard. 7 [ser. 2, 4]: pl. 347. 1836; Walp., Repert. Bot. Syst. 4: 31. 1845; Schau. in A. DC., Prodr. 11: 553. 1847; C. Gay, Hist. Fis. Chile Bot. 5: 10. 1849; Sweet, Ornament. Fl. Gard. 1: pl. 48. 1854; Briq., Ann. Conserv. & Jard. Bot. Genève. 7-8: 297. 1904; Stapf, Ind. Lond. 6: 429 & 430. 1931; Moldenke, Phytologia 3: 426 & 467. 1951; Moldenke, Biol. Abstr. 25: 3051. 1951; Moldenke in Chittenden, Roy. Hort. Soc. Dict. Gard. 4: 2211. 1951; Moldenke, Résumé 223, 364, 370, & 472. 1959; Moldenke, Résumé Suppl. 3: 14, 29, & 37 (1962) and 4: 5, 6, & 15. 1962.

Illustrations: Lindl. in Edwards, Bot. Reg. 21: pl. 1766 [in color]. 1835; Sweet, Ornament. Fl. Gard. 1: pl. 48 [in color]. 1854.

This variety differs from the typical form of the species in its more compact growth, the stems more or less abbreviated, and the leaves crowded.

Schauer (1847) describes the variety as follows: "foliis tripartitis, laciniis inciso-pinnatifidis, ultimis lineari-oblongis acutis" but includes V. sabini Sweet in its synonymy. It is doubtful whether the leaf characters which he gives really apply to this variety. Briquet (1904) says "Quant au V. multifida var. contracta Lindl. .... dont Schauer a fait son V. erinoides  $\beta$  contracta, c'est évidemment, d'après la figure, une forme alpine réduite du V. laciniata." The Lindley, Bot. Reg. reference given above is often dated "1836", but apparently should be 1835. Gay (1849) describes this plant "ramis plus minus abbreviatis; foliis confertis". Lindley affirms that it is native to the "Alps of Chile and Mendoza", and calls it "Dwarf purple vervain".

VERBENA LACINIATA var. SABINI (Sweet) Moldenke, Phytologia 3: 426. 1951.

Synonymy: Verbena erinoides var. sabini Sweet, Brit. Fl. Gard. 7 [ser. 2, 4]: pl. 347. 1836. Verbena sabini Hort. ex Sweet, Brit. Fl. Gard. 7 [ser. 2, 4]: pl. 347, in syn. 1836. Verbena multifida sabini D. Don ex G. Don in Loud., Hort. Brit. Suppl. 2: 680. 1839. Verbena sabini Sweet ex Schau. in A. DC., Prodr. 11: 553, in syn. 1847. Verbena sabiniana Hort. ex Briq., Ann. Conserv. & Jard. Bot. Genève. 7-8: 297. 1904. Verbena erinoides sabini D. Don ex Stapf, Ind. Lond. 6: 429. 1931. Verbena laciniata var. sabini Moldenke in Chittenden, Roy. Hort. Soc. Dict. Gard. 6: 2211. 1951.

Bibliography: Sweet, Brit. Fl. Gard. 7 [ser. 2, 4]: pl. 347. 1836; Walp., Repert. Bot. Syst. 4: 31. 1845; Schau. in A. DC., Prodr. 11: 553. 1847; Regel, Gartenfl. 28: 372--373. 1879; Hook. f. & Jacks., Ind. Kew. 2: 1179. 1895; Briq., Ann. Conserv. & Jard. Bot. Genève. 7-8: 296--297. 1904; Stapf, Ind. Lond. 6: 429. 1931; Moldenke, Phytologia 3: 426 & 467. 1951; Moldenke, Biol. Abstr. 25: 3051. 1951; Moldenke, Résumé 223, 364, 373, & 472. 1959; Moldenke, Résumé Suppl. 3: 29, 37, 38, 40, & 41. 1962.

Illustrations: Sweet, Brit. Fl. Gard. 7 [ser. 2, 4]: pl. 347 [in color]. 1836.

This variety differs from the typical form of the species in being more dwarf in habit, denser in growth, more glabrous, and with rich-purple corollas.

Briquet (1904) says "Le V. Sabini Sweet.....est représenté dans nos collections par des échantillons cultivés sous ce nom au jardin de Paris (ann. 1836, Verbena Sabiniana): ils appartiennent à une forme presque identique au V. pulchella Sweet et peuvent être rattachés au V. tenera Spreng." The original publication by Sweet is often dated "1838", but appears to be more correctly dated 1836. The "Hort. Brit. Suppl." reference listed above is sometimes credited to W. Baxter, apparently in error. G. Don says of the variety "This is identical with V. multifida var. contracta Lindl." Regel (1879) places V. sabini Hort. as a synonym under his V. pulchella "Spreng.", where he also places V. multifida Hort. and V. tenera Spreng.

VERBENA LANDBECKI R. A. Phil., Linnaea 33: 194. 1864.

Synonymy: Verbena landbecki R. A. Phil. ex Acevedo de Vargas, Bol. Mus. Nac. Hist. Nat. Chile 25: 57, sphalm. 1951.

Bibliography: R. A. Phil., Linnaea 33: 194. 1864; Hook. f. & Jacks., Ind. Kew. 2: 1179. 1895; Reiche, Fl. Chile 5: 285 & 287. 1910; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 42 & 101. 1942; H. N. & A. L. Moldenke, Pl. Life 2: 68. 1948; Moldenke, Alph. List Cit. 3: 687 & 813. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 101 & 198. 1949; Acevedo de Vargas, Bol. Mus. Nac. Hist. Nat. Chile 25: 56--57. 1951; Moldenke, Résumé 122 & 472. 1959; Moldenke, Résumé Suppl. 3: 14 (1962) and 4: 17. 1962.

Perennial plant, about 25 cm. tall, grayish-hispid, many-stemmed; leaves decussate-opposite, sessile, more or less semi-circular in outline, 1.5--2 cm. long, many-parted, bearing leafy twigs in their axils, the segments linear, obtuse at the apex, revolute along the margins; spikes terminal, short-pedunculate, many-flowered; bractlets awl-shaped, slightly shorter than the calyx; calyx about 8 mm. long, its rim with 5 short triangular teeth; corolla lilac or blue, its tube about 1 cm. long, the limb 8 mm. wide, the 5 lobes cuneate and emarginate; fruit unknown.

The type of this very rare species was collected by Christian Ludwig Landbeck near Choapa, Acancagua [Coquimbo, according to Acevedo de Vargas], Chile, in January, 1863, and is deposited in the herbarium of the Museo Nacional de Historia Natural at Santiago, Chile. The species has been found at altitudes of 1200 to 1350 meters, in flower in January and October. Thus far, only 2 herbarium specimens and 3 phototypes have been examined by me.

Reiche (1910) says of it "Muy parecida a V. erinoides o V. Berterii." Acevedo de Vargas (1951) cites the following Chilean specimens: Coquimbo: Landbeck s.n. [I.1863] (Sg--54672--type), s.

n. [Concumen, 1863] (Sg--54736, Sg--68372). Field Mus. 17425 (Sg). She notes that "La foto del Herb. Berlin, distribuida par Field Mus. Nat. Hist. 17422, no es V. lambecki. En nuestro herbario museal ha sido confundida con V. laciniata." The Macbride photograph to which she refers actually is of a cotype of V. intercedens Briq.

Citations: CHILE: Aconcagua: Landbeck s.n. [Choapa; Macbride photos 17425; Herb. Mus. Nat. Hist. Nat. Chile 54672] (Kr--photo of isotype, N--photo of type, N--photo of isotype). Coquimbo: Biese 1875 (N). Province undetermined: Claude-Joseph 4085 [Bureo] (W--1342397).

VERBENA LASIOSTACHYS Link, Enum. Hort. Berol. 2: 122. 1822.

Synonymy: Verbena prostrata R. Br. in Ait., Hort. Kew., ed. 2, 4: 41. 1812 [not V. prostrata Benth., 1959, nor G. Savi, 1802].

Verbena rostrata Felt, Bull. N. Y. State Mus. 200: 181, sphalm. 1917. Verbena lasiostachya Link ex Moldenke, Alph. List Invalid Names Suppl. 1: 25, in syn. 1947. Verbena prostrata Ait. ex Moldenke, Alph. List Invalid Names Suppl. 1: 26, in syn. 1947. Verbena lamberti Spreng. ex Moldenke, Résumé 368, in syn. 1959 [not V. lamberti Ker, 1827, nor Penny, 1832, nor Sims, 1820]. Verbena lasiostachys var. prostrata (R. Br.) Wall ex Moldenke, Résumé 368, in syn. 1959. Verbena leptostachya Winblad ex Moldenke, Résumé Suppl. 3: 39, in syn. 1962. Verbena prostrata Greene ex Moldenke, Résumé Suppl. 3: 40, in syn. 1962. Verbena prostrata A. Br. ex Moldenke, Résumé Suppl. 6: 11, in syn. 1963. Verbena lasiostachys var. lasiostachys [Raven], Aliso 5: 336. 1963.

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 ustr. Fl.*, print. 1, 3: 132 (1952) and print. 2, 3: 132. 1958.  
 Diffuse and sparsely villous or villous-hirsute annual or per-  
 ennial, strongly pungent, sometimes to 1.3 m. tall and equally

wide-spreading, more usually semi-decumbent or prostrate, much branched from the base; stems at first erect or ascending, usually 3--12 dm. tall, at length spreading and diffusely branched, sparsely villous; leaves decussate-opposite, mostly brunnescent in drying; leaf-blades oval or broadly ovate to oblong-ovate or oblong, 4--10 cm. long, obtuse or acute at the apex, cuneately attenuate at the base into the margined petiole, coarsely and irregularly serrate-dentate with apiculate teeth, incised, or laciniately lobed, the lower ones commonly 3-parted or -divided, the venation appressed above, more or less prominent beneath, both surfaces mostly soft-pubescent or pilose to pilose-strigose or villous, somewhat rugulose above, but not scabrous; spikes terminal, solitary or more often loosely paniculate, dense before anthesis, becoming much elongated and open in fruit, 5--43 cm. long, slender, densely flowered, whitish-hirsute throughout, the flowers and fruits mostly imbricate; bractlets lanceolate-subulate,  $1/3$  to  $1/2$  as long as the calyx, villous and sometimes finely glandular; flowers small; calyx 4--5 mm. long, villous and often finely glandular, subtruncate, the distal end connivent above the schizocarp, the teeth subulate; corolla varying from blue, bluish, or pale-blue to pale-lavender, deep-lavender, purplish, purple, or violet, its tube a little longer than the calyx, glabrate or very sparsely pubescent on the outer surface, the limb 3--5 mm. wide; cocci oblong-triquetrous with a convex back, 2--2.5 mm. long, slightly thicker at the distal end, raised-reticulate above, striate below, often with the striations fading out toward the base, the commissural face more or less muricate, approximately reaching the tip of the nutlet; chromosome number:  $n = 7$ ,  $2n = 14$ .

This common and rather perplexing western species has been collected in dry fog-swept shrubby hills, brushy hills and hillsides, and steep or dry hillsides, in wet places as well as in dry ground, on flats along riverbanks, in 2--3 inches of muddy water on muddy shores, in dried freshwater marshes, in canyons and on canyon floors, in washed gravel and slide rock and sand near tide line, in pinewoods and dry washes, at the base of foothills and at the edge of woods, in waste places and moist ravines, on flats and dry sunny flats, in seeps at the base of ocean cliffs, near creek beds, in woods and pine woods, on damp sunny south slopes, along roadsides, railroad tracks, and stream banks, in low areas near rivers, on creek bottoms and gravel bars, along rivers especially near the ocean, in stony river flood beds, in marshes and valleys and at the borders of marshes, in hillside meadows, on sand dunes, growing on silt or shale, in granite, sandy, or sandy loam soil. It has been described as common in the Transition Zone and an inhabitant of the Upper Sonoran Zone, usually in dry open hill country, from sea-level to altitudes of 2995 meters. It has been collected in anthesis from March to October and in December, and in fruit from May to October and in December. Johnston reports it as "common" in wet places in the San Antonio Mountains; Balls says "plants occurring spontaneously in artificial streams in moist heavy soil with Mimulus cardinalis Dougl."



Ewan states that this species is frequent in the moist soil of backwater channels in Los Angeles County and in dry grassy clearings in Baccharetum with Navarretia and Gnaphalium in Contra Costa County, California. Harrington calls it "a bush about 3 feet tall." The Dudley s.n. [June 18, 1905] collection bears a label which avers that the flowers are "deep lavender, pale lavender, or on some plants white" -- the white ones are by me regarded as f. albiflora Moldenke, which see. Culbertson 4210 is a mixture with V. abramsi Moldenke. J. D. Randall 422 in the Dudley Herbarium has fasciated spikes. The Ogden s.n. [Ventura, July & Aug. 1892] and L. S. Rose 39140 collections have the calyx slightly smaller than is usual for the typical form of this species and may possibly represent var. septentrionalis Moldenke. Draper 25, distributed as this species (at least in the Britton Herbarium), is actually Marrubium vulgare L. in the Lamiaceae.

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### BOOK REVIEWS

Alma L. Moldenke

"Wild Flowers of America", edited by H. W. Rickett, 471 pp., 400 color plates. Crown Publishers, New York City; 3rd printing. 1963. \$15.

This book is a wonderful means of making the famous M. V. Walcott life-size native wild flower plates of the Smithsonian Institution available in a new printing to all aficionados of our wild flora and of naturalistic art. There are some additional plates by D. F. Platt executed in much the same style and so blending harmoniously in this presentation. The paintings are natural appearing, graceful and scientifically accurate. Reprinting of the original plates has automatically resulted in a small loss of clarity of line. For the most part the colors are precisely reproduced. Plates 70 and 71 of the moccasin flower have too much blue and too little pink in the corollas. Plates 149 and 150 of the bladder pod have too much light blue and too little green in the foliage. Plate 243 of willow herb has too much of brown tones instead of magenta pink in the flowers. Plate 320 has beauty berry fruits of an unnatural red instead of a wide range of shades from pale through medium violets and blues.

The introduction was prepared by an eminent botanist and provides a helpful explanation of the nature of common and scientific plant names, a useful glossary, ready identification charts, a good index, and a fine short text describing the species, genus and family of the plants depicted and their geographic range. The scientific classification uses the names originally on the plates instead of some newer taxonomy that might well have been added.